



HEARING EXAMINER EXHIBIT LIST

PROJECT:	Public Hearing for Main Brook Townhomes Preliminary Plat Major Amendment
FILE NUMBER(S):	PLMA2019-01
APPLICANT:	Hanson Homes @ Main Brook, LLC – Rick Hanson
HEARING DATE AND LOCATION:	May 3, 2019 at 4:00 PM Monroe City Hall Council Chambers 806 West Main Street, Monroe, WA 98272

EXHIBITS

1. Staff Analysis
2. Vicinity Map
3. Preliminary Plat Major Amendment Map
4. Preliminary Plat Major Amendment Application
5. Letter Requesting Amendment
6. Letter of Complete Application
7. Notice of Application
 - 7- A Affidavit of Publication
 - 7- B Affidavit of Posting (On Site)
 - 7- C Affidavit of Posting (CH_Library)
 - 7- D Affidavit of Mailing
8. Public Comments
 - A. Letter from Michael Gallagher
 - B. Letter from Denise Gulas
9. Notice of Public Hearing
 - 9- A Affidavit of Publication NOPH
 - 9- B Affidavit of Mailing
 - 9- C Affidavit of Posting (On Site)
 - 9- D Affidavit of Posting (CH)

EXHIBIT LIST (CONTINUED)

10. Original Hearing Examiner Decision
11. DNS
12. Building Elevation
13. Revised Traffic Report
14. Stormwater Drainage Report
15. Geotechnical Report
16. Approved Civil Plans
17. Amended Landscape Plans

	STAFF REPORT AND RECOMMENDATION Main Brook Townhomes Public Hearing for Main Brook Townhomes Preliminary Plat Major Amendment
HEARING EXAMINER:	Mr. Phil Olbrechts, City of Monroe Hearing Examiner
DATE:	May 3, 2019
FILE NUMBERS:	PLMA2019-01
DESCRIPTION:	The applicant is requesting a major amendment to the approved Preliminary Plat of Main Brook Townhomes. The original approval was for a 19-lot subdivision containing eighteen (18) zero lot-line townhome lots and one (1) commercial lot to be developed in two (2) phases on approximately 1.42 acres in the Mixed-Use Commercial (MUC) zoning district. The major amendment proposes to change the use of lot 19 from commercial to residential for a 10-unit apartment building.
APPLICANT:	Rick Hanson Hanson Homes at Main Brook, LLC PO Box 2289 Snohomish, WA 98291
PROJECT LOCATION:	Section 1 Township 27 Range 6 Quarter SW LOT 4 OF CITY OF MON SP 199008 REC AFN 199912215006 BEING A PTN OF SW1/4 SW1/4; otherwise known as XXXX W. Main Street, Monroe, Washington, 98272. Snohomish County Tax Parcel Number(s): 27060100310200, 27060100310300, and 27060100310400.
HEARING DATE:	May 3, 2019 at 4:00 PM
HEARING LOCATION:	Monroe City Hall Council Chambers 806 West Main Street Monroe, WA 98272
STAFF CONTACT:	Anita Marrero, Senior Planner, City of Monroe

A. PROJECT DESCRIPTION

The applicant, Hanson Homes at Main Brook, LLC, has submitted an application for preliminary plat major amendment approval of a 19-lot subdivision containing eighteen (18) zero lot-line townhome lots and one (1) multi-family residential lot for a 10-unit apartment building on approximately 1.42 acres (approximately 61,885 square feet). The subject project is zoned Mixed Use Commercial (MUC). The project site is addressed as XXXX West Main Street, Monroe, WA 98272; and is identified by Snohomish County Tax Parcel Numbers 27060100310200, 27060100310300, and 27060100310400. The subject site is vacant and contains a parking lot.

B. BACKGROUND

On March 13, 2018, the Hearing Examiner approved the preliminary plat for Main Brook Townhomes (Exhibit 10). The original approval was for a 19-lot subdivision containing eighteen (18) zero lot-line townhome lots and one (1) commercial lot to be developed in two (2) phases on approximately 1.42 acres in the Mixed-Use Commercial (MUC) zoning district with associated grading, drainage improvements, landscaping, and street frontage improvements.

The developer applied for and received grading permits on June 14, 2018. To date, the site has been cleared and is under construction.

On February 11, 2019, the applicant applied for a Preliminary Plat Major Amendment. The major amendment application proposes to change the use of lot 19 from commercial to residential for a 10-unit apartment building.

Only minor modifications of the plans submitted, as described in MMC 18.84.210 (e.g. BLA or reduction in total number of lots), may be approved by the Community Development Director or his/her designee if the modifications do not change the Findings of Fact or the Conditions of Approval. As this proposal changes the approved use from commercial to multi-family residential and increases the density from 18 dwelling units to 28 dwelling units, a major amendment to the approved preliminary plat is required.

C. GENERAL INFORMATION

1. Applicant and Owner:

Rick Hanson
Hanson Homes at Main Brook, LLC
PO Box 2289
Snohomish, WA 98291

2. General Location:

The site is located at Section 1 Township 27 Range 6 Quarter SW LOT 4 OF CITY OF MON SP 199008 REC AFN 199912215006 BEING A PTN OF SW1/4 SW1/4; otherwise known as XXXX W. Main Street, Monroe, Washington, 98272. Snohomish County Tax Parcel Number(s): 27060100310200, 27060100310300, and 27060100310400. (Exhibit 2).

3. Site Address:

XXXX W. Main Street, Monroe, WA 98272

4. Description of Proposal:

The applicant, Hanson Homes, is requesting a major amendment to the approved Preliminary Plat of Main Brook Townhomes. The original approval was for a 19-lot subdivision containing eighteen (18) zero lot-line townhome lots and one (1) commercial lot to be developed in two (2) phases on approximately 1.42 acres in the Mixed-Use Commercial (MUC) zoning district. The major amendment proposes to change the use of lot 19 from commercial to residential for a 10-unit apartment building. The site currently does not contain any structures.

5. Critical Areas:

The City's critical areas map does not indicate critical areas on the subject site.

6. Comprehensive Plan Land Use Designations, Zoning Designations, and Existing Land Uses of the Project Site and Surrounding Area:

AREA	EXISTING LAND USE DESIGNATION	ZONING	EXISTING USE
Project Site	Mixed Use	Mixed Use Commercial (MUC)	Vacant, parking lot
North of Site	High Density SFR	Urban Residential (UR6000)	Single-family residential
South of Site (across West Main Street)	General Commercial & Mixed Use	Mixed Use Commercial (MUC)	Single-family residential
East of Site	Mixed Use	Mixed Use Commercial (MUC)	Single-family residential, Multi-family residential, Commercial
West of Site	Mixed Use	Mixed Use Commercial (MUC)	Nursing Home

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. Public Utilities and Services Provided by:

Water:	City of Monroe	Gas:	Puget Sound Energy
Sewer:	City of Monroe	Cable TV:	Comcast
Garbage:	Republic Services	Police:	City of Monroe
Storm Water:	City of Monroe	Fire:	Snohomish County Fire District No. 7
Telephone:	Verizon	School:	Monroe Public Schools
Electricity:	Snohomish County PUD No. 1	Hospital:	Evergreen Health

D. APPLICATION REVIEW PROCESS

1. Regulatory Requirements for Review of Quasi-Judicial Actions:

Pursuant to Monroe Municipal Code (MMC) Sections 21.20.050(F) and 21.50.120, preliminary plats are quasi-judicial actions subject to a public hearing with the Hearing Examiner as the final decision body for the application.

The decision of the Hearing Examiner shall be final and conclusive, unless appealed as provided by law, in accordance with MMC Chapter 21.60. Appeals of final decisions on preliminary plats may be appealed to Snohomish County Superior Court (MMC 21.50.120).

2. Application Submittal and Completeness:

The Main Brook Townhomes Preliminary Plat Major Amendment application was received by the City of Monroe on February 11, 2019 (Exhibit 4). The application was deemed complete and vested on March 8, 2019 (Exhibit 6).

3. Public Notification and Comments:

Public notice for the application was provided in accordance with the requirements of MMC section 21.40.010. A Notice of Application was published, mailed, and posted on March 11, 2019 (Exhibit 7 - 7E). A public comment period was provided from March 11, 2019 through 5:00 PM on March 25, 2019. Two (2) public comments were received. (Exhibits 8A – 8B).

A Notice of Public Hearing was published, mailed, and posted on April 19, 2019 (Exhibit 9 – 9D). The date of the open record public hearing with the Hearing

Examiner is set for May 3, 2019 at 4:00 PM. Public testimony may be provided during the public hearing pursuant to MMC 21.50.060(C).

4. Environmental Review:
A Determination of Non-Significance (DNS) was issued on December 15, 2017 (Exhibit 11). No additional environmental review is required.

E. FINDINGS OF FACT

1. Application Submittal and Completeness:
The application was submitted on February 11, 2019 and determined to be complete on March 8, 2019.
2. Environmental Review:
A SEPA Determination of Non-Significance (DNS) was issued on December 15, 2017. No comments or appeals on the SEPA threshold determination were received. No additional environmental review is required.
3. Bulk Requirements and Dimensional Standards:
Per MMC section 18.10.050 Zoning Land Use Matrix, and MMC section 18.10.140 Bulk Requirements and Table A, the development shall comply with the following standards for the Mixed Use Commercial (MUC) zone for townhome residential development:

Table B
– Mixed Use Zoning District Bulk Development Requirements

	Mixed Use	
	MUNC	MUC
Minimum Lot Size, in sq. ft.	NA	NA
Minimum Lot Width¹	NA	NA
Maximum Lot Coverage	75%	NA ²
Maximum Building Height³	35 – 45	35 – 55
Minimum First Story Height (mixed use buildings)	15	15
Front Yard Setback^{4,5}	5/20	5/20
Side Yard Setback^{6,7,8}	5 – 10	10
Rear Yard Setback⁹	10 – 20	10 – 20
Landscape Buffer¹⁰	5	5

Notes:

1. When townhomes or other attached housing units are built on separate lots, the lot width-to-depth ratio will be approximately 1:4.
2. Except as required by the landscape and parking district requirements.
3. The maximum height along street frontages is limited to thirty-five feet (three stories); in the MUNC zone height can be increased to forty-five feet when the fourth floor is stepped back and in the MUC zone height can be increased to fifty-five feet when the fourth and fifth floors are stepped back.
4. The minimum required setback is five feet; the maximum allowed setback is twenty feet.
5. Porches, covered entries, or pedestrian-oriented spaces may project up to five feet into front yard setbacks.
6. When townhomes or other attached housing units are built on separate lots, a zero setback between units is permitted in allowed zones. The outside setback for attached housing units abutting a ROW, separate detached unit(s), or different zone will be ten feet.
7. Side yard setbacks for single-family residences will be five feet minimum; all other mixed use, commercial and multifamily structures will be ten feet minimum.
8. Side yard setbacks for fourth and fifth floors require an additional five feet per floor. That is, the fourth floor must be set back at least five feet from the building's edge and the fifth floor must be set back at least ten feet from the building's edge.
9. The rear setback can be reduced to ten feet if parking is underground or underneath the unit for multifamily developments or parking is accessed off an alley/private drive to the rear and provides a minimum backup area of twenty feet including the alley or private lane.
10. Landscape buffers will be five feet along property lines; however, the city may waive the five-foot perimeter landscape buffer for internal property lines when the adjacent properties share parking, access, or other common features that will make intensive landscaping impractical.

4. Density Calculations:

Section 18.10.020(B) of the MMC delineate how an applicant can determine the maximum allowed residential density for mixed use zoning districts.

To calculate the maximum allowed base density for a site in the MUC zone (12-20 dwelling units per acre), multiply the gross site area, in acres, by the units allowed per acre. The base density for the proposed site, with a gross site area of 1.42 acres, would be calculated as follows.

Step 1. Gross site area (in acres) * 12 (12 dwelling units per acre in the MUC zone):

$$1.42 \text{ acres} * 12 = \underline{17.04 \text{ dwelling units}}$$

Step 2. Gross site area (in acres) * 20 (20 dwelling units per acre in the MUC zone):

$$1.42 \text{ acres} * 20 = \underline{28.4 \text{ dwelling units}}$$

Step 3. MMC 18.10.020(B)(1) requires that "when calculating the maximum residential density, any resulting fraction 0.50 or over shall be rounded up to the next whole number and any fraction 0.49 or under shall be rounded down to the preceding whole number:"

*A maximum of **17-28 units** are allowed in the Main Brook Townhome preliminary plat.*

The applicant is proposing 28 dwelling units, which is within the maximum density allowed in the MUC zoning district. Thus, the density is consistent with that allowed by the zoning code.

5. MMC Title 17 Subdivision(s):

Pursuant to MMC 17.12.030(E), the City Planner, City Engineer, Fire Marshal, and Building Official have all reviewed and commented on the proposed project. Their comments are included in the body of this report and in the project permit conditions of approval.

6. MMC Title 17 Preliminary Plat Decision Criteria:

Pursuant to MMC 17.12.030(H)(1-3) the applicant shall comply with the following:

The hearing authority shall consider if the proposed subdivision conforms to the comprehensive plan and the Shoreline Master Program;

The City of Monroe's 2015-2035 Comprehensive Plan Future Land Use Map designates the project site as "Mixed Use." The proposed preliminary plat, under MUC zoning, which provides for 12-20 dwelling units per acre, conforms to the City of Monroe's 2015-2035 Comprehensive Plan "Mixed Use" designation for density. The City of Monroe 2015-2035 Comprehensive Plan Table 3.07 provides the following description of the "Mixed Use" land use plan designation:

Mixed-Use. Mixed-Use areas should be concentrated in areas of the city characterized by a diverse fine-grained mix of land uses; where there is the ability to develop land efficiently through the consolidation and infill of under-utilized parcels; and where infrastructure, transit and other public services / facilities are available or where the city or proponent can provide public services. Mixed-use areas encourage office, retail, and light-industrial uses; compatible high-technology manufacturing; institutional and educational facilities; public and private parks and other public gathering places; entertainment and cultural uses; and attached residential units up to 25 dwelling units per acre integrated throughout the district, within the same property, or inside a single building.

Design standards will increase compatibility among the mixed-uses on both the site and structures. Standards to integrate development may include but not be limited to coordinated building design, signage, landscaping, and access configuration. The city will implement this designation by more than one zoning classification. Individual development proposals will take into account the density of adjacent existing development and the capacities of existing and planned public facilities.

The site is not located within the shoreline jurisdiction for the City. Therefore, this provision does not apply.

The hearing authority shall consider the physical characteristics of a proposed subdivision site and may recommend disapproval of a proposed plat because of improper protection from floods, inundation or wetland conditions;

The site is not located within a floodplain. As described above, there are no wetlands on site. This provision does not apply.

All identified direct impacts must be mitigated or meet concurrency as set forth in MMC Title 20.

All direct impacts of the proposal have been or will be mitigated through municipal code requirements and the conditions of preliminary plat approval.

Per MMC section 20.06.030(D), strategies and financial commitments are in place to complete necessary improvements or strategies within six years of time of

development as set forth in the Comprehensive Plan. This includes the payment of mitigation and/or impact fees for water, wastewater, parks, transportation, and schools. Stormwater is mitigated on site by the applicant during subdivision improvement construction. The City of Monroe Police Department and Fire District #7 did not raise any concerns regarding level of service standards when provided the opportunity to comment on the proposed preliminary plat.

According to the information presented in the development application as well as the analysis completed by City staff, the development does not lower the level of service on the following public facilities and services below the minimum standards established within the City of Monroe Comprehensive Plan:

- a. Potable water;
- b. Wastewater;
- c. Storm water drainage;
- d. Police and fire protection;
- e. Parks and recreation;
- f. Arterial roadways; and
- g. Public schools.

7. RCW 58.17.110 - Approval or disapproval of subdivision and dedication-factors to be considered-Conditions of approval-Finding-Release from damages:

1) The city, town, or county legislative body shall inquire into the public use and interest proposed to be served by the establishment of the subdivision and dedication. It shall determine:

(a) If appropriate provisions are made for, but not limited to, the public health, safety, and general welfare, for open spaces, drainage ways, streets or roads, alleys, other public ways, transit stops, potable water supplies, sanitary wastes, parks and recreation, playgrounds, schools and school grounds, and shall consider all other relevant facts, including sidewalks and other planning features that assure safe walking conditions for students who only walk to and from school; and

The preliminary plat map (Exhibit 3) confirms that the preliminary plat application includes provisions for the public health, safety, and general welfare including open spaces, drainage ways, streets or roads, potable water, sanitary wastes, parks and recreation, playgrounds, schools and school grounds, and sidewalks that assure safe walking conditions for students who only walk to and from school. The Monroe School District was notified of the development application. No comments were received from the Monroe School District on the proposal.

(b) Whether the public interest will be served by the subdivision and dedication.

The public interest would be served by the subdivision and dedication, provided that the subdivision and dedication were developed under the current zoning district (MUC). Under this scenario, an existing parcel in the City would be developed allowing for efficient provision of public services, consistent with densities identified in the Monroe 2015-2035 Comprehensive Plan.

(2) A proposed subdivision and dedication shall not be approved unless the city, town, or county legislative body makes written findings that:

(a) Appropriate provisions are made for the public health, safety, and general welfare and for such open spaces, drainage ways, streets or roads, alleys, other public ways, transit stops, potable water supplies, sanitary wastes, parks and recreation, playgrounds, schools and school grounds and all other relevant facts, including sidewalks and other planning features that assure safe walking conditions for students who only walk to and from school; and

The preliminary plat map (Exhibit 3) confirms that the preliminary plat application includes provisions for the public health. The Staff Analysis addresses the provisions made for safety and general welfare, including open spaces, drainage ways, streets or roads, potable water supplies, sanitary wastes, parks and recreation, playgrounds, schools and school grounds, and sidewalks that assure safe walking conditions for students who only walk to and from school.

(b) The public use and interest will be served by the platting of such subdivision and dedication. If it finds that the proposed subdivision and dedication make such appropriate provisions and that the public use and interest will be served, then the legislative body shall approve the proposed subdivision and dedication. Dedication of land to any public body, provision of public improvements to serve the subdivision, and/or impact fees imposed under RCW 82.02.050 through 82.02.090 may be required as a condition of subdivision approval. Dedications shall be clearly shown on the final plat. No dedication, provision of public improvements, or impact fees imposed under RCW 82.02.050 through 82.02.090 shall be allowed that constitutes an unconstitutional taking of private property. The legislative body shall not as a condition to the approval of any subdivision require a release from damages to be procured from other property owners.

The proposed preliminary plat includes provisions for the public health, safety, and general welfare including open spaces, drainage ways, streets or roads, potable water supplies, sanitary wastes, parks and recreation, playgrounds, schools and school grounds, and sidewalks that assure safe walking conditions for students who walk to and from Frank Wagner Elementary School and Park Place Middle School and the residents of the City of Monroe. The subject proposal does not include dedication of a public park. Private recreation space has been provided in Tract 999. Required site improvements and impact fees will be required as conditions of plat approval. The Washington State Growth Management Act requires that jurisdictions that plan shall have sufficient housing capacity to meet projected growth targets. The proposed plat increases the residential density of the City by creating lots to accommodate future population growth, which increases the City's housing capacity.

8. Critical Areas:

There are no known critical areas on this site.

9. Utilities:

There is sufficient capacity available in the City's public water and sanitary sewer system to serve the proposed subdivision. All lots will connect to the City's water and sewer system. Sanitary sewer and water lines will be constructed across West Main Street and in the proposed private road in accordance with the current City's Public Works Design and Construction Standards. The utilities plan is attached to the civil plan set (Exhibit 16).

As part of the civil plan review process, the applicant will install improvements to the stormwater system. Stormwater management will be designed to meet the requirements of the 2014 Department of Ecology Storm Water Management Manual for Western Washington as administered by the City Engineer. Any future permitted activities, such as building permits, will also have to comply with the provisions of the Storm Water Management Manual in effect at the time of the vesting of the permit application.

10. Streets and Traffic:

Access to the subdivision is proposed via West Main Street. Internal access to individual lots will be provided through a private road 'A' and 'B' (Tract 997). Road 'A' is 30', 2-10' travel lanes and a 5' sidewalk on one side. Road 'B' is 20', 2-10' travel lanes. The proposed private road design was approved by the Public Works Director. Frontage improvements along West Main Street are already installed which includes curb and gutter, and a five foot wide sidewalk along the entire length of the site frontage. An ADA ramp and new driveway approach will be installed at the entrance of West Main Street.

Traffic control devices and street signs shall be installed prior to final plat approval, and all private roads within the subdivision shall be constructed in accordance with the City's Public Works Design and Construction Standards and installed by the developer to the satisfaction of the City Engineer prior to final plat approval.

Based on the updated Traffic Impact Study dated January 21, 2019 (Exhibit 13), the development is anticipated to generate approximately 12.88 AM peak-hour trips and 15.68 PM peak-hour trips. The trip generation results in a lower trip generation than what was analyzed in the September 2017 TIA. The level of service analysis shows that all of the study intersections in the TIA are anticipated to operate within acceptable level of service thresholds.

Impacts to the City's transportation system are mitigated through the collection of traffic mitigation fees. In accordance with the City's traffic impact fee program under MMC Chapter 20.12, impact fees require a standard fee amount per dwelling unit as a condition of residential development within the City. Traffic impact fees shall be paid in accordance with MMC Chapter 20.12 and shall be based on the amount in effect at the time of payment. Frontage improvements and paving, including curb, gutter, sidewalk, and street trees shall be installed along all private streets within the subdivision in accordance with the City's Public Works Design and Construction Standards.

11. Park and Recreation Usable Open Space:

Per MMC 18.78.080, for each proposed dwelling unit in a multifamily structure, complex or development, recreational space shall be provided per the following table:

Type of dwelling unit	Open space
Studio and one bedroom	90 square feet per unit
Two bedrooms	130 square feet per unit
Three or more bedrooms	170 square feet per unit

The proposed subdivision provides a private neighborhood park within the development. Tract 998 (2,036 sq. ft.) is open space and Tract 999 (2,417 sq. ft.) will contain a play structure, bench, landscaping, and fencing (Exhibit 17). The development is required to provide 4,360 square feet of recreation space. The total recreation space provided is 4,453 square feet. Maintenance of the park and recreation tract shall be the responsibility of the homeowner's association.

Impacts to the City park and recreation system from the anticipated additional public park users will be mitigated. In accordance with the City's park impact mitigation fees established under MMC Chapter 20.10, impact fees require a standard fee amount per dwelling unit as a condition of residential development within the city. Park impact fees shall be paid in accordance with MMC 20.10. Park impact fees shall be based on the fee amount in effect at the time of payment.

12. Schools:

Impacts to the Monroe Public Schools and the Snohomish School District in the form of additional students are addressed through mitigation programs. The City of Monroe has adopted the Monroe and Snohomish School District 2016 - 2021 Capital Facilities Plan, and imposes impact fees for schools in accordance with the plan and MMC Chapter 20.07. School mitigation fees require a standard fee amount per dwelling unit as a condition of residential development within the city. School impact fees are based on the amount in effect at the time of payment.

RCW 58.17.110(2) requires the City to make a finding that the proposed subdivision assures "safe walking conditions for students who only walk to and from school." Students will walk from the development to Frank Wagner Elementary School and Park Place Middle School. Students will be bussed from the development to Monroe High School by the Monroe School District. Sidewalks will be installed on one side of Road 'A' and will extend to West Main Street providing safe walking conditions. The public streets fronting on and/or adjacent to the subdivision include sidewalks on all sides of the street as well as sidewalk along the property frontage along West Main Street.

13. Impact Fees and Capital Improvements:

Development shall be subject to all applicable MMC requirements specifically including and without limitations, all applicable impact fees, and capital improvement charges pursuant to MMC section or chapter 13.04.025, 13.08.272, 20.07, 20.10, and 20.12.

14. Preliminary Plat Expiration:

Per MMC section 17.12.020(A), preliminary approval of a proposed plat shall be effective for a period not to exceed five years from the date of Hearing Examiner

approval, or concurrently with the expiration of the preliminary plat, whichever occurs earlier.

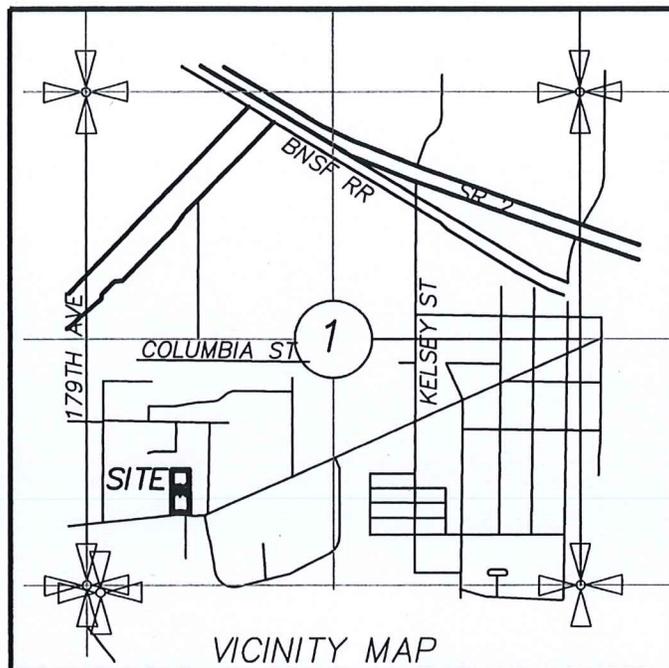
F. CONCLUSIONS OF LAW

1. The City of Monroe 2015-2035 Comprehensive Plan Future Plan Map designation for the site is "Mixed Use," which assumes an overall density of up to 25 dwelling units per acre. The site's present zoning designation of Mixed Use Commercial is in compliance with the future land use designation adopted in the current Comprehensive Plan.
2. The proposed subdivision, as conditioned herein, will be consistent with the pertinent development goals and policies outlined in the Monroe 2015-2035 Comprehensive Plan.
3. The proposed subdivision, as conditioned herein, will be consistent with the applicable land division requirements outlined in MMC Title 17, Subdivisions.
4. The proposed subdivision, as conditioned herein, will be consistent with the pertinent development standards outlined in MMC Title 18, Planning and Zoning.
5. The proposed subdivision, as conditioned herein, will make appropriate provisions for public use and interest, health, safety, and general welfare.
6. The proposed preliminary plat as conditioned meets all MMC requirements for a subdivision.
7. The preliminary plat should be approved subject to the conditions noted below.
8. The preliminary plat approval shall expire five years from the date of Hearing Examiner approval.

G. STAFF RECOMMENDATION

Based on the Findings of Fact and Conclusions of Law detailed in the staff report, staff recommends that the Hearing Examiner **APPROVE** the Main Brook Townhomes Preliminary Plat Major Amendment (project number PLMA2019-01), subject to the following conditions of preliminary approval:

1. All improvements shall be constructed in accordance with the approved preliminary plat map with the date stamp of February 11, 2019. Minor modifications of the plans submitted, as described in MMC 18.84.210 (e.g. BLA or reduction in total number of lots), may be approved by the Community Development Director or his/her designee if the modifications do not change the Findings of Fact or the Conditions of Approval.
2. All development shall be subject to the conditions of the original preliminary plat approval contained in Exhibit 5.



SCALE: 1' = 2000'

VICINITY MAP for
MAIN BROOK TOWNHOMES

IN THE SW 1/4 OF THE SW 1/4 OF SECTION 1, T.27N., R.6E., W.M.
CITY OF MONROE, SNOHOMISH COUNTY, WASHINGTON

ORCA Land Surveying

3605 COLBY AVENUE, EVERETT, WA 98201
425-259-3400 FAX: 425-258-1616

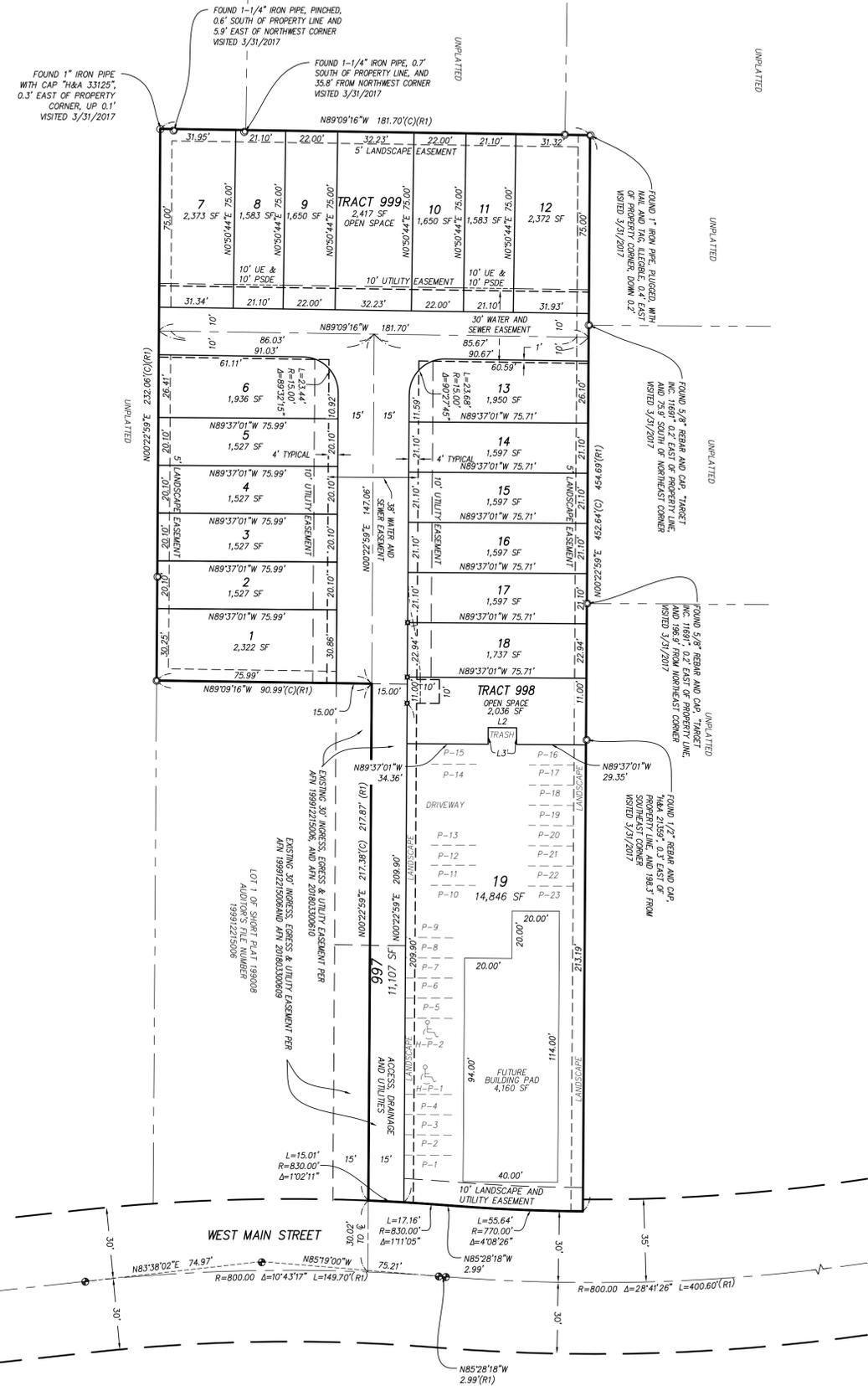
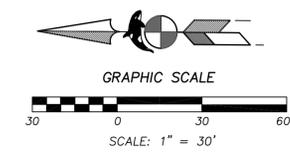
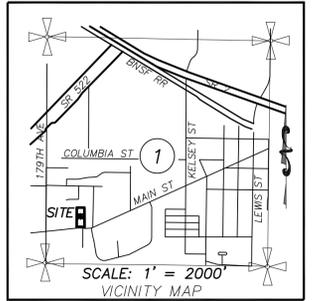


JOB NO. 2017-028

DATE: 9/29/2017

DWG BY: JLH

MINOR MODIFICATION OF MAIN BROOK TOWNHOMES IN THE SW 1/4 OF THE SW 1/4 OF SECTION 1, TOWNSHIP 27 NORTH, RANGE 6 EAST, W.M. CITY OF MONROE, SNOHOMISH COUNTY, WASHINGTON



- EXISTING LEGEND: Symbols for square concrete monument, rebar w/cap, temporary bench mark, power pole, guy anchor, fire hydrant, water meter, water valve, gas valve, power vault, utility vault, catch basin, sanitary sewer manhole, mail box, edge of asphalt, building wall, deciduous tree, conifer tree, hedge.

EQUIPMENT AND PROCEDURES:

INSTRUMENTATION: LEICA TCR1205 TOTAL STATION
METHOD OF SURVEY: FIELD TRAVERSE OF EXISTING MONUMENTATION
PRECISION: MEETS OR EXCEEDS W.A.C. 332-130-090 REQUIREMENTS
BASIS OF BEARING: PER THE UNDERLYING CITY OF MONROE SHORT PLAT NO. 1999008, AFN 199912215006.
REFERENCES: R1) CITY OF MONROE SHORT PLAT NO. 1999008, AFN 199912215006
R2) RECORD OF SURVEY, AFN 200102265002
R3) RECORD OF SURVEY, AFN 9708145002
BENCHMARK: WSDOT BRASS DISK CEMENTED INTO A DRILL HOLE AND SET LEVEL WITH THE CONCRETE SURFACE, NOTED ON WSDOT SURVEY INFORMATION SYSTEM, DESIGNATION GPS31522-154, MONUMENT ID 3244. ELEVATION = 71.699'
DATUM: NAVD 88

NOTES:

- 1) THIS SURVEY WAS PERFORMED WITH THE BENEFIT OF A TITLE REPORT, BUT DOES NOT PURPORT TO SHOW ALL EASEMENTS, RESTRICTIONS, RESERVATIONS AND/OR OCCUPATION WHICH MAY ENCUMBER TITLE TO OR USE OF THIS PROPERTY.
2) THIS SURVEY HAS BEEN PREPARED FOR THE EXCLUSIVE USE OF PARTIES WHOSE NAMES APPEAR HEREON ONLY, AND DOES NOT EXTEND TO ANY UNNAMED THIRD PARTIES WITHOUT THE EXPRESS RECERTIFICATION BY THE LAND SURVEYOR.
3) BOUNDARY LINES SHOWN AND CORNERS SET REPRESENT DEED LOCATIONS; OWNERSHIP LINES MAY VARY. NO GUARANTEE OF OWNERSHIP IS EXPRESSED OR IMPLIED.
PROJECT NOTES:
1) NO DUPLEX STRUCTURES PROPOSED WITHIN THIS SUBDIVISION.
2) ENTIRE SITE LIES OUTSIDE OF FLOOD HAZARD AREA AND LANDSLIDE HAZARD AREA.
3) ALL LOT AREAS ARE GROSS AREAS UNLESS OTHERWISE NOTED.
4) NEAREST FIRE HYDRANT IS LOCATED ON MAIN STREET +/- 10' WEST OF SITE.
5) FIRE HYDRANT(S) TO BE INSTALLED WITHIN THE SUBDIVISION AS DIRECTED BY THE FIRE MARSHAL.
6) 10' UTILITIES EASEMENT ABUTTING ROAD FRONTAGE ON ALL LOTS AND TRACTS AT TIME OF RECORDING.
7) ADJOINING LOT DATA INFORMATION TAKEN FROM THE PROPERTY AND TAX DATA PREPARED BY THE SNOHOMISH COUNTY ASSESSOR.
8) LINE OF DEVELOPMENT ACTIVITY AND PROJECT CLEARING LIMITS SHALL BE THE PROJECT BOUNDARY.
9) PROJECT SHALL BE CONSTRUCTED IN TWO PHASES.
10) H.O.A. IS RESPONSIBLE FOR STORM WATER SYSTEM MAINTENANCE.
11) DWELLING UNITS WITH ANY FIRST FLOOR EXTERIOR SURFACE IN EXCESS OF 150' FROM A FIRE APPARATUS ACCESS ROAD HAVING A MINIMUM OF 20' WIDTH SHALL BE PROTECTED WITH RESIDENTIAL FIRE SPRINKLERS.
12) MAX BUILDING HEIGHT 35'-55', FRONT & REAR YARD SETBACK 10', SIDE YARD SETBACK 0'.
13) CROSS EASEMENT FOR LOT 19 AT FINAL PAT APPROVAL.
14) 10 TWO BEDROOM APARTMENT UNITS ARE PROPOSED WITHIN LOT 19.

TITLE 18.10.140(B)

USING 675 SQUARE FEET OF PARK AND RECREATIONAL USABLE OPEN SPACE PER BASE DWELLING UNIT AS FOUND IN TABLE 1
(18) TOWNHOME UNITS X 170 SQUARE FEET = 3,060 SQUARE FEET OF USABLE OPEN SPACE REQUIRED.
(10) 2 BEDROOM APARTMENT UNITS X 130 SQUARE FEET = 1,300 SQUARE FEET OF USABLE OPEN SPACE REQUIRED.
TOTAL OPEN SPACE REQUIRED = 4,360 SQUARE FEET.
USABLE OPEN SPACE PROVIDED IN THIS SUBDIVISION IS 4,453 SQUARE FEET.
LOTS AND TRACTS AREAS
LOTS 1-19 46,497 SF 1.07 ACRES
TRACTS 998 & 999 (PARK AND RECREATIONAL USABLE OPEN SPACE) 4,453 SF 0.10 ACRES

APPROVED BY PLANNING
Name: [Signature]
Date: 04/25/2019

PROJECT DESIGN TEAM
PLANNER / CONTACT: HANSON HOMES
OWNER / APPLICANT: ORCA LAND SURVEYING
SURVEYOR: ORCA LAND SURVEYING
ENGINEER: OMEGA ENGINEERING, INC.
LANDSCAPE ARCHITECT: ORIGIN DESIGN GROUP
TRAFFIC: GIBSON TRAFFIC CONSULTANTS

GEOTECHNICAL ENGINEER: LIU & ASSOCIATES, INC.
LEGAL DESCRIPTION: LOTS 2, 3 AND 4 OF CITY OF MONROE SHORT PLAT NO. 1999008, RECORDED UNDER RECORDING NUMBER 199912215006, BEING A PORTION OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 1, TOWNSHIP 27 NORTH, RANGE 6 EAST, W.M., SITUATE IN THE COUNTY OF SNOHOMISH, STATE OF WASHINGTON.

LEGAL DESCRIPTION: LOTS 2, 3 AND 4 OF CITY OF MONROE SHORT PLAT NO. 1999008, RECORDED UNDER RECORDING NUMBER 199912215006, BEING A PORTION OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 1, TOWNSHIP 27 NORTH, RANGE 6 EAST, W.M., SITUATE IN THE COUNTY OF SNOHOMISH, STATE OF WASHINGTON.

PROJECT INFORMATION table with columns for TAX NUMBER, SITE ADDRESS, CITY OF MONROE, MIXED USE, SINGLE FAMILY RESIDENTIAL, MIXED USE COMMERCIAL, MIXED USE COMMERCIAL, CITY OF MONROE SEWER DEPARTMENT, CITY OF MONROE WATER DEPARTMENT, MONROE SCHOOL DISTRICT NO. 103, SNOHOMISH COUNTY F.P.D. # 7, CITY OF MONROE, SNOHOMISH COUNTY PUD, XFINITY, REPUBLIC SERVICES, GSE, VERIZON COMMUNICATIONS. Includes Gross Site Area, Net Site Area, Total Lots Proposed, Gross Density, Net Density, Average Lot Size, Smallest Lot Size, Park and Recreational/Usable Open Space Provided.

RECEIVED 02/11/2019 CITY OF MONROE



ORCA Land Surveying
3605 COLBY AVENUE, EVERETT, WA 98201
425-259-3400 FAX: 425-258-1616

LAND RESOLUTIONS
LAND USE CONSULTANTS
Design • Planning • Management
MINOR MODIFICATION OF MAIN BROOK TOWNHOMES
IN THE SW 1/4 OF THE SW 1/4 OF SECTION 1, TWP. 27 N., RGE. 6 E., W.M. CITY OF MONROE SNOHOMISH COUNTY, WASHINGTON



Planning & Permitting Division
Permit Assistance Center

806 West Main Street, Monroe, WA 98272
Phone (360) 794-7400 Fax (360) 794-4007
www.monroewa.gov

Land Use Amendment Application

- Binding Site Plan Amendment
Short Subdivision Amendment
Subdivision Amendment
PRD Amendment

FOR OFFICE USE ONLY
Permit type & number: Major Plat Amendment PLMA2019-01
Rec'd By Leigh Anne Barr Date Rec'd 2-11-2019

Permit Submittal Hours Monday through Friday:

Building, Fire & Land Use permits: 8:00 am - 12:00 pm & 1:00 pm - 5:00 pm

Site Address or Property Location: 123X WEST MAIN STREET MONROE WA 98272

Assessor's tax parcel #(s): 27060100310200, 27060100310300 & 27060100310400

Size of site (acre/square feet): 1.42 ACRES 62059 SQ FT. Number of Lots: 19

Applicant/Agent: HANSON HOMES AT MAIN BROOK LLC Phone #: (425) 328-5202

*Signature: [Signature] MEMBER Printed Name: RICHARD D. HANSON MEMBER

Mailing Address: P.O. Box 2289 98290 Fax #: ()

City: SNOHOMISH State: WA Zip: 98290 E-mail: 2011HANSONHOMES@GMAIL.COM

Property Owner: Phone #: ()
(if different from applicant)

*Signature: Printed Name:

Mailing Address: Fax #: ()

City: State: Zip: E-mail:

2nd Property Owner: Phone #: ()
(if applicable)

*Signature: Printed Name:

Mailing Address: Fax #: ()

City: State: Zip: E-mail:

Attach a separate sheet with the above requested information if there are additional Property Owners or Parcels.

*Applicant/Agent/: By your signature above, you hereby certify that the information submitted is true and correct and that you are authorized by the property owner(s) to act on their behalf.

**Property Owner(s): By your signature above, you hereby certify that you have authorized the above Applicant and/or Agent to make application and act on your behalf for this application. A property owner is any person, corporation, or financial institution that has ownership of all or of a portion or percentage of a property as shown on a Title Certificate for said property.



Land Use Amendment Application
Page 2

Date of Preliminary / Final Plat approval: MARCH 8TH 2018

Assessor's Recording Number of Final Plat (if applicable) N/A

List all amendments to the decision that are being requested. Attach a separate sheet if necessary.
REQUEST TO;
1) CHANGE PROPOSED USE OF LOT 19 FROM ~~COMMERCIAL~~ COMMERCIAL TO RESIDENTIAL
2) AND REMOVE #39 OF HEARING EXAMINERS DECISION
SEE ATTACHED LETTER.

FOR OFFICE USE ONLY	
Planning Application Fee: \$ _____	Publication Fee: \$ _____
Fire Plan Check Fee: \$ _____	Mailing Fee: \$ _____
SEPA Fee: \$ _____	Technology Fee: \$ _____
	TOTAL FEES: \$ _____

February 6, 2019

Phil A. Olbrechts
City of Monroe Hearing Examiner

Re: Main Brook Townhomes, Preliminary Plat PL2017-02

Dear Phil A. Olbrechts:

This letter is in support of amending the decision of the Hearing Examiner in regards to Main Brook Townhomes. I am the Applicant in regards to this development and I have determined that the best use for Lot 19 of Main Brook Townhomes is residential use. Thus, I respectfully request to change the proposed use of Lot 19 from commercial to residential use.

Residential Use for Lot 19

I plan to use Lot 19 for a 10-unit apartment. The apartment is going to be composed of eight 2-bedroom and two 3-bedroom apartments. I will be providing 2 parking spaces for each unit but there will be a total of 25 parking spaces available for the apartments.

I will also be providing a revised traffic study showing a change on the traffic impact. This traffic study was dated January 21, 2019.

The current foot print of the future building on Lot 19 is currently at 4,160 square feet. This current footprint will be slightly amended as shown in the revised site plan dated February 1, 2019 that I will provide to the Hearing Examiner.

I will be providing a copy of 2 easements showing that the Main Brook Town Home lots, including Lot 19, has access through the easement area into West Main Street. These easements are recorded under AFN 201803300610 and 201803300609 recorded on March 30, 2018.

There are currently 3,060 square feet of open space for the development. In light of the conversion from commercial to residential use, I will be adding a total of 1,393 square feet of open space for a total of 4,453 (3,060 +1,393) square feet because of the 10-unit apartments. As per section 18.78.080 of the Monroe Municipal Code ("MMC"), I am required to provide a total of 4,440 of open space as shown in the calculation below:

- 1.) Lots 1-18, 3-bedroom units.

170 square feet per unit multiplied by 18 units equals 3,060 square feet required for Lots 1-18.

- 2.) Lot 19 apartment, eight 2-bedroom units

130 square feet unit multiplied by 8 units equals 1,040 square feet required for the eight 2-bedroom units

3.) Lot 19 apartment, two 3-bedroom units

170 square feet unit multiplied by 2 units equals 340 square feet required for the two 3-bedroom units.

4.) Total open space required

3,060 plus 1,040 plus 340 equals 4,440 of required open space per 18.78.080 of the MMC.

There will be more than enough open space to accommodate the conversion to residential use.

Design Standards

Number 30 and Number 39 of the Hearing Examiner's decision stated under the Findings of Fact, Conclusions of Law and Final Decision have conflicting design standards. The plans for Main Brook Townhomes were designed under MMC 18.10.132 standards (the code mentioned in Number 30). I respectfully request that Number 39 of the Hearing Examiner's decision be removed because of the conflicting design standards between Number 30 and 39.

Best,



Hanson Homes at Main Brook, LLC
By: Richard D. Hanson, Manager



March 8, 2019

Hanson Homes at Main Brook, LLC
ATTN: Rick Hanson
PO Box 2289
Snohomish, WA 98291

RE: Notice of Complete Application for Main Brook Townhomes Preliminary Plat Major Amendment

File No. PLMA2019-01

Dear Mr. Hanson,

Your land use permit application which was submitted to the City of Monroe on February 11, 2019 for preliminary plat major amendment approval has been determined **COMPLETE** as of **March 8, 2019**. A complete application is not an approved application. A permit application is complete when it meets the submission requirements outlined in the Monroe Municipal Code. The City's determination of completeness does not preclude the City from requesting revisions, additional information or studies if new information is required, corrections are needed, or where there are substantial changes in the proposed action.

A decision will be made within 90 days of the date of the letter of completeness excluding time periods as described in MMC 21.50.110. If you have any questions and/or wish to discuss any portion of the enclosure of your application, please feel free to contact me at (360) 863-4513 or amarrero@monroewa.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read "Anita Marrero", with a horizontal line extending to the right.

Anita Marrero
Senior Planner

Cc: File



City of Monroe
 806 West Main Street, Monroe, WA 98272
 Phone (360) 794-7400 Fax (360) 794-4007
www.monroewa.gov

NOTICE OF LAND USE APPLICATION

NOTICE IS HEREBY GIVEN that the City of Monroe has received an application for a Preliminary Plat Major Amendment as described below:

PROJECT NAME: Main Brook Townhomes Preliminary Plat Major Amendment

PROJECT FILE#: PLMA2019-01

APPLICANT/OWNER: Hanson Homes at Main Brook, LLC, PO Box 2289 Snohomish, WA 98291

PROJECT LOCATION: The site is located at Section 1 Township 27 Range 6 Quarter SW LOT 4 OF CITY OF MON SP 199008 REC AFN 199912215006 BEING A PTN OF SW1/4 SW1/4; otherwise known as XXXX W. Main Street, Monroe, Washington, 98272. Snohomish County Tax Parcel Number(s): 27060100310200, 27060100310300, and 27060100310400.

PROJECT DESCRIPTION: The applicant, Hanson Homes, is requesting a major amendment to the approved Preliminary Plat of Main Brook Townhomes. The original approval was for a 19-lot subdivision containing eighteen (18) zero lot-line townhome lots and one (1) commercial lot to be developed in two (2) phases on approximately 1.42 acres in the Mixed-Use Commercial (MUC) zoning district. The major amendment proposes to change the use of lot 19 from commercial to residential for a 10-unit apartment building.

APPROVALS REQUIRED: Preliminary Plat Approval

STUDIES REQUIRED: Revised Traffic Study

APPLICATION PROCESS: A preliminary plat is a public hearing review process per City of Monroe Municipal Code (MMC) Chapter 21.20.050(F). It requires a public hearing, which will be noticed separately, and decision before the Hearing Examiner.

APPLICATION DATE: February 11, 2019

NOTICE OF COMPLETE APPLICATION: March 8, 2019

DATE OF NOTICE OF APPLICATION: March 11, 2019

COMMENT PERIOD: Submit written comments on or before **5 p.m., March 25, 2019**. Comments should address completeness of the application, quality or quantity of information presented, and the project's conformance to applicable plans or code.

STAFF CONTACT: Anita Marrero, Senior Planner @ (360) 863-4513 or amarrero@monroewa.gov

All documents are available for review Monday-Friday, 8:00-5:00p.m., excluding holidays, at Monroe City Hall, 806 West Main St Monroe, WA 98272 and online at www.monroewa.gov/mainbrook

A decision on the application will be made within ninety (90) days of the date of the letter of completeness.

Everett Daily Herald

Affidavit of Publication

State of Washington }
County of Snohomish } ss

Maggie Boyd being first duly sworn, upon oath deposes and says: that he/she is the legal representative of the Everett Daily Herald a daily newspaper. The said newspaper is a legal newspaper by order of the superior court in the county in which it is published and is now and has been for more than six months prior to the date of the first publication of the Notice hereinafter referred to, published in the English language continually as a daily newspaper in Snohomish County, Washington and is and always has been printed in whole or part in the Everett Daily Herald and is of general circulation in said County, and is a legal newspaper, in accordance with the Chapter 99 of the Laws of 1921, as amended by Chapter 213, Laws of 1941, and approved as a legal newspaper by order of the Superior Court of Snohomish County, State of Washington, by order dated June 16, 1941, and that the annexed is a true copy of EDH847955 PLMA2019-01 as it was published in the regular and entire issue of said paper and not as a supplement form thereof for a period of 1 issue(s), such publication commencing on 03/11/2019 and ending on 03/11/2019 and that said newspaper was regularly distributed to its subscribers during all of said period.

The amount of the fee for such publication is \$60.90.

[Signature]

Subscribed and sworn before me on this

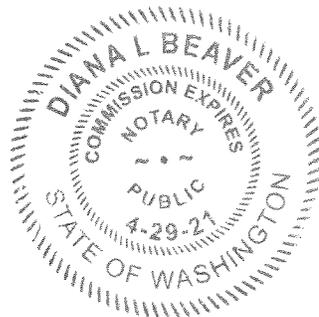
11th day of March,

2019.

Diana L Beaver

Notary Public in and for the State of Washington.

City Of Monroe | 14103247
LEIGH ANNE BARR



CITY OF MONROE, WASHINGTON
NOTICE OF LAND USE APPLICATION

NOTICE is hereby given that the City of Monroe has received an application for a Preliminary Plat Major Amendment as described below: **PROJECT NAME:** Main Brook Townhomes Preliminary Plat Major Amendment **PROJECT FILE#:** PLMA2019-01 **APPLICANT/TOWNER:** Hanson Homes at Main Brook, LLC, PO Box 2289 Snohomish, WA 98291 **PROJECT LOCATION:** The site is located at Section 1 Township 27 Range 6 Quarter SW LOT 4 OF CITY OF MON SP 199008 REC AFN 199912216006 BEING A PTN OF SW1/4 SW1/4; otherwise known as XXXX W. Main Street, Monroe, Washington, 98272. Snohomish County Tax Parcel Number(s): 27060100310200, 27060100310300, and 27060100310400. **PROJECT DESCRIPTION:** The applicant, Hanson Homes, is requesting a major amendment to the approved Preliminary Plat of Main Brook Townhomes. The original approval was for a 19-lot subdivision containing eighteen (18) zero lot-line townhome lots and one (1) commercial lot to be developed in two (2) phases on approximately 1.42 acres in the Mixed-Use Commercial (MUC) zoning district. The major amendment proposes to change the use of lot 19 from commercial to residential for a 10-unit apartment building. **APPROVALS REQUIRED:** Preliminary Plat Approval **STUDIES REQUIRED:** Revised Traffic Study **APPLICATION PROCESS:** A preliminary plat is a public hearing review process per City of Monroe Municipal Code (MMC) Chapter 21.20.050(F). It requires a public hearing, which will be noticed separately, and decision before the Hearing Examiner. **APPLICATION DATE:** February 11, 2019 **NOTICE OF COMPLETE APPLICATION:** March 8, 2019 **DATE OF NOTICE OF APPLICATION:** March 11, 2019 **COMMENT PERIOD:** Submit written comments on or before 5 p.m., March 26, 2019. Comments should address completeness of the application, quality or quantity of information presented, and the project's conformance to applicable plans or code. **STAFF CONTACT:** Anita Marrero, Senior Planner @ (360) 863-4513 or amarrero@monroewa.gov. All documents are available for review Monday-Friday, 8:00-5:00p.m., excluding holidays, at Monroe City Hall, 806 West Main St. Monroe, WA 98272 and online at www.monroewa.gov/mainbrook

A decision on the application will be made within ninety (90) days of the date of the letter of completeness.
Published: March 11, 2019. EDH847955

AFFIDAVIT OF POSTING NOTICE OF LAND USE APPLICATION

STATE OF WASHINGTON)

XXXX W. Main St., Monroe WA. 98272 (tax
parcel #'s 27060100310200 / 27060100310300 /
27060100310400
Project location

COUNTY OF SNOHOMISH)

Main Brook Townhomes – Major Plat Amendment
(PLMA2019-01)
Application Name and File Number

I, Jamie Wochock (print name) being first duly sworn on oath, depose and say:
That I am a citizen of the United States of America; That I am competent to be witness
herein; That on the 11th day of March 2019, that I posted one sign for the Main
Brook Townhomes Major Plat Amendment Notice of Application on or near the
property concerned, in a conspicuous place; and the correct date of posting of said notice,
to wit:

XXXX W Main St. Monroe WA. 98272 (see above for tax parcel #'s)
LOCATION OF NOTICE

Jamie Wochock
Signed

Subscribed and sworn to me this 12th day of March, 2019

NOTARY SEAL

Kim M. Shaw
NOTARY PUBLIC in and for the State of
Washington, residing at:

Snohomish County

Printed Name: Kim M. Shaw

My commission expires: 6/3/2020



AFFIDAVIT OF POSTING NOTICE OF LAND USE APPLICATION

STATE OF WASHINGTON)

XXXX W Main St., Monroe, WA 98272

Project location

Main Brook Townhomes Major Plat
Amendment (PLMA2019-01)

COUNTY OF SNOHOMISH)

Application Name and File Number

I, Leigh Anne Barr being first duly sworn on oath, depose and say: That I am a citizen of the United States of America; That I am competent to be witness herein; That on the 11th day of March, 2019, that I posted (2) Notice of Application for the Main Brook Townhomes Major Plat Amendment at Monroe City Hall and the Monroe Library at the following addresses:

806 West Main Street, Monroe, WA 98272 / 1070 Village Way, Monroe, WA 98272

Location of notice



Signed

Subscribed and sworn to me this 19th day of March, 2019

NOTARY SEAL



NOTARY PUBLIC in and for the State of Washington, residing at:

Snohomish County

Printed Name: Kim M. Shaw

My commission expires: 6/3/2020



AFFIDAVIT OF MAILING NOTICE OF LAND USE APPLICATION

STATE OF WASHINGTON)

XXXX W Main St., Monroe, WA 98272

Project location

Main Brook Townhomes Major Plat
Amendment (PLMA2019-01)

COUNTY OF SNOHOMISH)

Application Name and File Number

I, Leigh Anne Barr, being first duly sworn on oath depose and say that on the 8th day of March, 2019, made application with Click 2 Mail to mail on March 10, 2019, a copy with prepaid postage of the Notice of Land Use Application for the Main Brook Townhomes Major Plat Amendment. Attached is a list of names and addresses to whom this information was mailed.



Signed _____

Subscribed and sworn to me this 19th day of March, 2019

NOTARY SEAL



NOTARY PUBLIC in and for the State of
Washington, residing at:

Snohomish County

Printed Name: Kim M. Shaw

My commission expires: 6/3/2020



OwnerNmFirst	OwnerNm	OwnerAddr	OwnerCityNm	OwnerState	OwnerZIP
Arnie & Maria	Meza	1152 Johnson St SE	Monroe	WA	98272
Arthur & Denise	Gulas	184 Academy Way	Monroe	WA	98272
Barbara	McLaren	338 Dennis Way	Monroe	WA	98272
Bd Monroe Properties LLC		970 5th Ave NW	Issaquah	WA	98027
Best Life Properties LLC		31115 Cherry Valley Rd	Duvall	WA	98019
Carolyn	Lunn	18106 159th St SE	Monroe	WA	98272
Charles Edward & Andrea Jhonne	Swanson	705 Alden St	Monroe	WA	98272
Christian Reformed Church-Monroe		1012 W Main St	Monroe	WA	98272
Christopher & Camren	Vivolo	280 Dennis Way	Monroe	WA	98272
Compass Health-Monroe		PO Box 3810	Everett	WA	98213
Michael & Sandra	Condo	16014 Dennis Wy	Monroe	WA	98272
Daniel & Rhonda	Williams	704 Lawrence St	Monroe	WA	98272
Darlene	Helm	22207 Dubuque Rd	Snohomish	WA	98290
David	Glenn	1118 Johnson St SE	Monroe	WA	98272
David	Rintala	314 Dennis Way	Monroe	WA	98272
David & Cindy	Lang	297 Dennis Way	Monroe	WA	98272
David & Winifred	McCune	283 Dennis Way	Monroe	WA	98272
Delana	Reeves	253 Dennis Way	Monroe	WA	98272
Denis	Porter	148 Academy Way	Monroe	WA	98272
Donald	White Jr	715 Lawrence St	Monroe	WA	98272
Donald	Wiens	719 Lawrence St	Monroe	WA	98272
Donald & Shirley	Thayer	241 Dennis Way	Monroe	WA	98272
Dorothy	Clark	13309 208th Ave SE	Monroe	WA	98272
Double Down Holding Company LLC		P O Box 1001	Clinton	WA	98236
Dwight	Pruitt	722 Lawrence St	Monroe	WA	98272
Eric	Harting	181 Academy Way	Monroe	WA	98272
Eutiquio Martinez	Garcia	26702 Ben Howard Rd	Monroe	WA	98272
Gail & Jeffrey	Jones	270 Dennis Way	Monroe	WA	98272
Gary & Jodi	Hazen	284 Dennis Way	Monroe	WA	98272
Greg	Hetland	166 Academy Way	Monroe	WA	98272
Harmony House East Association		PO Box 419	Everett	WA	98206
Harriet	Ferguson	329 Dennis Way	Monroe	WA	98272
Heather Holmes & Aaron Joseph	Goldstein	2207 W Lake Sammamish Pkwy SE	Bellevue	WA	98008

OwnerNmFirst	OwnerNmI	OwnerAddr	OwnerCityNm	OwnerState	OwnerZIP
Howard Kenneth	Shelton	1136 159th St SE	Monroe	WA	98272
Irene	Slagle	2232 12th St Apt 223	Everett	WA	98201
J Michael	Gallagher	1203 W Main St	Monroe	WA	98272
Jayce	Sanders	1118 156th Pl SE Apt D40	Mill Creek	WA	98272
Jessie	Barraza	316 S Kelsey St Apt 1	Monroe	WA	98272
John	Harris	310 Orr St	Monroe	WA	98272
John & Nancy	Wolf	328 Dennis Way	Monroe	WA	98272
Joseph	Moore	1017 W Main St Apt D101	Monroe	WA	98272
Judith	Carberry	18042 159th St SE	Monroe	WA	98272
Kelli	Campbell	18054 159th St SE Unit B	Monroe	WA	98272
Keven & Gayle	McGinnis	315 Dennis Way	Monroe	WA	98272
Kimberly	Kussman	709 Lawrence St	Monroe	WA	98272
Kurt	Nowadnick	703 Alden Ave	Monroe	WA	98272
Lagniappe Investments LLC		12821 NE 36th St	Bellevue	WA	98005
Larry & Marjorie	McKay	P O Box 880	Monroe	WA	98272
Lawrence & Kimberlea	Green	258 Dennis Way	Monroe	WA	98272
Leanna	Patridge	504 S 20th St D	Mount Vernon	WA	98274
Leonard	Rich	1103 W Main St	Monroe	WA	98272
Linda & Boyd	Hill Sr	287 Dennis Way	Monroe	WA	98272
Lourdes	Hernandez	1113 W Main St	Monroe	WA	98272
Lowell & Kathleen	Braaten	325 Dennis Way	Monroe	WA	98272
Lucy & Bert	Spada	15925 179th Ave SE	Monroe	WA	98272
Mary	Ottini	1102 W Main St	Monroe	WA	98272
Michael	Hollack	1060 Johnson St SE	Monroe	WA	98272
Monroe Christian School		1009 W Main St	Monroe	WA	98272
Monroe Professional Center LLC	Attn: Dr. Ir	16784 NE 86th Crt	Redmond	WA	98052
Monroe School Dist 103		200 E Fremont St.	Monroe	WA	98272
Monroe Valley Church Of Christ		15915 179th Ave SE	Monroe	WA	98272
Ngv Chhe	Chhour	14911 Chain Lake Rd Apt M387	Monroe	WA	98272
Norma	Marshall	324 Dennis Way	Monroe	WA	98272
Nusreta	Aksamovic	837 Pine St	Everett	WA	98201
Donald & Jean Trust	O'Connor	18088 159th St SE	Monroe	WA	98272
Rachel	Moser	339 Dennis Way	Monroe	WA	98272

OwnerNmFirst	OwnerNmI	OwnerAddr	OwnerCityNm	OwnerState	OwnerZIP
Raymond & Elizabeth	Neibert	PO Box 1567	Monroe	WA	98272
Richard	Fredlund	12303 NE 147th Ct	Kirkland	WA	98034
Richard & Mary	White	177 Academy Way	Monroe	WA	98272
Robert & Janet	Russell	294 Dennis Way	Monroe	WA	98272
Robert Michael	Berg	717 Lawrence Ave	Monroe	WA	98272
Rutledge-Monroe 1 LLC		12509 130th Ln NE	Kirkland	WA	98034
Ryan	Dilsaver	18463 Blueberry Ln No H303	Monroe	WA	98272
Sahar	Siddiq	11013 Meridian Dr SE	Everett	WA	98208
Sharon	Morency	16005 Dennis Way	Monroe	WA	98272
Smiley	Creswell	1 Academy Way	Monroe	WA	98272
Sorn	Sutter	15919 179th Ave SE	Monroe	WA	98272
Steven & Chaiyapathna Darawan	Morrison	15921 179th Ave SE	Monroe	WA	98272
The Downie Family LLC		1188 Village Way	Monroe	WA	98272
Tibltcs	Bereket	16605 6th Ave W Unit K201	Lynnwood	WA	98037
Timothy & Joette	Cochran	273 Dennis Way	Monroe	WA	98272
Tracey	Wagner	1230 W Main St	Monroe	WA	98272
Triple Down LLC		2302 2nd Ave N	Seattle	WA	98109
Triple Down LLC		12821 NE 36th St	Bellevue	WA	98005
Victoria & Hilliard Paul	Smith	246 Dennis Way	Monroe	WA	98272
Wade	Brickman	8002 156th St SE	Snohomish	WA	98296
Western Wash Seventh-Day Adventists		32229 Weyerhaeuser Way S	Federal Way	WA	98001
William & Mary	Clark	PO Box 165	Monroe	WA	98272
William & Valeria	Barschaw	1087 Hidden Valley Rd	Cle Elum	WA	98922
Blick Shirley R Trust		707 Alden Ave	Monroe	WA	98272
Hanson Homes @ Main Brook, LLC		PO Box 2289	Snohomish	WA	98291
City of Monroe		806 W Main St	Monroe	WA	98272

LAW OFFICES OF
J. MICHAEL GALLAGHER
ATTORNEYS AT LAW

MONROE LAW CENTER
1203 WEST MAIN STREET
MONROE, WASHINGTON 98272
PH: (360) 794-7531
FAX: (360) 805-1927

March 25, 2019

Sent via email only to: ammerrero@monroewa.gov

Anita Marrero
City of Monroe

Re: Project File PSMA2019-01
Applicant: Hansom Homes at Main Brook

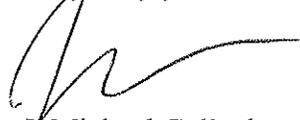
Dear Ms. Marrero:

We spoke about two weeks ago. At that time, I expressed my concern about the amended application re the property located next to my office at 1203 West Main. My concern was, and remains, that changing the request for a permit for commercial development, ostensibly from an office building, to a 10 unit residential apartment building will be a negative for the immediate neighborhood. While I consider the proposed 19 single family lots a positive improvement, the inclusion of an apartment building is not. My complaints are as follows: Increased population density. Tenants vs. landowners. Maintenance of grounds. Traffic. Noise. Trespass. Destruction of my property. Disruption to my business. Commitment of the tenants to the neighborhood.

As evidence of my concerns, just look at the tri-plex development across from Compass Health vs. the low income housing on Main Street "Monroe Family Village, A Housing Hope Community". The tri-plexes are well maintained by the property owners, while the apartments are in a constant state of disrepair. In fact, the sign was missing letters until last week.

In conclusion, as a business owner since 12/99 in Monroe, I object to the proposed amendment.

Very truly yours,



J. Michael Gallagher

JMG/sa

From: [D. Gulas](#)
To: [Anita Marrero](#)
Subject: RE: MA2019-01 Main Brook Townhomes
Date: Friday, March 15, 2019 3:44:28 PM

Dear Ms. Marrero,

We live across the street from this pending development. Having 18 housing units go in across the street was already going to cause us difficulty getting in and out of our street due to the driveway at this development being catty corner from our street. This already makes it tricky to turn left from our street when someone is leaving from the Main Brook Townhomes driveway. We have bikes, kids, large commercial vehicles, school busses and commuters using Main Street.

I think adding a 10 unit apartment building to this development is not appropriate when the townhomes have already been started. An apartment building is much more appropriate with proper parking and landscaping and planning early in the permitting process not as a last minute add on. That is not planning and this lot is not appropriate for an apartment building since they already have squeezed 18 zero lot line townhomes on 1.42 acres. I can just imagine what parking is already going to look like with 36 plus cars trying to park in the area and no parking for guests.

I oppose adding a 10 unit apartment to this project and I hope my neighbors agree with me for the safety of their children who play on our street.

Thank you.

Denise Gulas
184 Academy Way



City of Monroe
 806 West Main Street, Monroe, WA 98272
 Phone (360) 794-7400 Fax (360) 794-4007
www.monroewa.gov

NOTICE OF LAND USE PUBLIC HEARING

NOTICE is hereby given that a **PUBLIC HEARING** is scheduled to be held on the proposed **MAIN BROOK TOWNHOMES PRELIMINARY PLAT MAJOR AMENDMENT** on Friday, May 3rd, 2019 at 4:00 P.M. by the City of Monroe Hearing Examiner in the Council Chambers at City Hall, located at 806 West Main Street, Monroe, WA.

PROJECT NAME: Main Brook Townhomes Preliminary Plat Major Amendment

PROJECT FILE #: PLMA2019-01

APPLICANT: Hanson Homes @ Main Brook, LLC

CONTACT: Rick Hanson, PO Box 2289, Snohomish WA. 98291

PROJECT DESCRIPTION: The applicant, Hanson Homes, is requesting a major amendment to the approved Preliminary Plat of Main Brook Townhomes. The original approval was for a 19-lot subdivision containing eighteen (18) zero lot-line townhome lots and one (1) commercial lot to be developed in two (2) phases on approximately 1.42 acres in the Mixed-Use Commercial (MUC) zoning district. The major amendment proposes to change the use of lot 19 from commercial to residential for a 10-unit apartment building.

PROJECT LOCATION: The site is located at Section 1 Township 27 Range 6 Quarter SW LOT 4 OF CITY OF MON SP 199008 REC AFN 199912215006 BEING A PTN OF SW1/4 SW1/4; otherwise known as XXXX W. Main Street, Monroe, Washington, 98272. Snohomish County Tax Parcel Number(s): 27060100310200, 27060100310300, and 27060100310400.

PUBLIC COMMENTS: Anyone wishing to comment on the above item or to provide other relevant information may do so in writing or appear in person before the Hearing Examiner at the time and place of said public hearing. The Hearing Examiner is required to issue a final decision on this project pursuant to MMC 21.50.030(D). The Hearing Examiner's decision will be final and issued within 10 days of the public hearing.

PUBLIC REVIEW OF DOCUMENTS: The file is available for review during regular business hours, 8:00 a.m. - 5:00 p.m., Monday - Friday at Monroe City Hall, 806 West Main Street, Monroe WA. For more information, please contact Kim Shaw at (360) 863-4532 or kshaw@monroewa.gov. Project information is also available on the city's website at: www.monroewa.gov/mainbrook.

STAFF CONTACT: Anita Marrero, Senior Planner, at (360) 863-4513 or amarrero@monroewa.gov.

Accommodations for people with disabilities will be provided upon request.
 Please contact City Hall at (360) 794-7400 and allow one-week advance notice.

Client	EDH103247 - City Of Monroe	Phone	(360) 794-7400		
Address	Attn: Kim Fogh, 806 W Main St	E-Mail	kfogh@monroewa.gov		
	Monroe, WA, 98272	Fax			
Order#	853505	Requested By	KIM SHAW	Order Price	\$60.90
Classification	8901 - EDH-WIDE-Public Notices	PO #	PLMA2019-01	Tax 1	\$0.00
Start Date	04/20/2019	Created By	1751	Tax 2	\$0.00
End Date	04/20/2019	Creation Date	04/19/2019, 08:11:32 am	Total Net	\$60.90
Run Dates	2			Payment	\$0.00
Publication(s)	Everett Daily Herald, HeraldNet				
Sales Rep	1751 - Cedarquist, Karen	Phone	(425) 339-3089		
		E-Mail	kcedarquist@heraldnet.com		
		Fax	(425) 339-3438		

CITY OF MONROE, WASHINGTON
NOTICE OF LAND USE PUBLIC HEARING

NOTICE is hereby given that a PUBLIC HEARING is scheduled to be held on the proposed MAIN BROOK TOWNHOMES PRELIMINARY PLAT MAJOR AMENDMENT on Friday, May 3rd, 2019 at 4:00 P.M. by the City of Monroe Hearing Examiner in the Council Chambers at City Hall, located at 806 West Main St., Monroe, WA. PROJECT NAME: Main Brook Townhomes Preliminary Plat Major Amendment PROJECT FILE#: PLMA2019-01 APPLICANT: Hanson Homes at Main Brook LLC, PO Box 2289 Snohomish, WA 98291 PROJECT LOCATION: The site is located at Section 1 Township 27 Range 6 Quarter SW LOT 4 OF CITY OF MON SP 199008 REC AFN 199912215006 BEING A PTN OF SW1/4 SW1/4; otherwise known as XXXX W. Main Street, Monroe, Washington, 98272. Snohomish County Tax Parcel Number(s): 27060100310200, 27060100310300, and 27060100310400. PROJECT DESCRIPTION: The applicant, Hanson Homes, is requesting a major amendment to the approved Preliminary Plat of Main Brook Townhomes. The original approval was for a 19-lot subdivision containing eighteen (18) zero lot-line townhome lots and one (1) commercial lot to be developed in two (2) phases on approximately 1.42 acres in the Mixed-Use Commercial (MUC) zoning district. The major amendment proposes to change the use of lot 19 from commercial to residential for a 10-unit apartment building. PUBLIC COMMENTS: Anyone wishing to comment on the above item or to provide other relevant information may do so in writing or appear in person before the Hearing Examiner at the time and place of said public hearing. The Hearing Examiner is required to issue a final decision on this project pursuant to MMC 21.50.030(D). The Hearing Examiner's decision will be final and issued within 10 days of the public hearing. PUBLIC REVIEW OF DOCUMENTS: The file is available for review during regular business hours, 8:00 a.m. - 5:00 p.m., Monday - Friday at Monroe City Hall, 806 West Main Street, Monroe WA. For more information, please contact Kim Shaw at (360) 863-4532 or kshaw@monroewa.gov. Project information is also available on the city's website at: www.monroewa.gov/mainbrook. STAFF CONTACT: Anita Marrero, Senior Planner, at (360) 863-4513 or amarrero@monroewa.gov. Accommodations for people with disabilities will be provided upon request. Please contact City Hall at (360) 794-7400 and allow one-week advance notice.

Published: April 20, 2019. EDH853505

AFFIDAVIT OF MAILING NOTICE OF PUBLIC HEARING

STATE OF WASHINGTON)

XXXX W Main St., Monroe, WA 98272

Project location

COUNTY OF SNOHOMISH)

Main Brook Townhomes Major Plat
Amendment (PLMA2019-01)

Application Name and File Number

I, Kim Shaw, being first duly sworn on oath depose and say that on the 18th day of April, 2019, made application with Click 2 Mail to mail on April 19, 2019, a copy with prepaid postage of the Notice of Land Use Public Hearing for the Main Brook Townhomes Major Plat Amendment. Attached is a list of names and addresses to whom this information was mailed.

Kim Shaw

Signed

Subscribed and sworn to me this 18th day of April, 2019

NOTARY SEAL



CBSA

NOTARY PUBLIC in and for the State of Washington, residing at:

Monroe, Snohomish, WA

Printed Name: Amy Bright

My commission expires: 7/17/2021

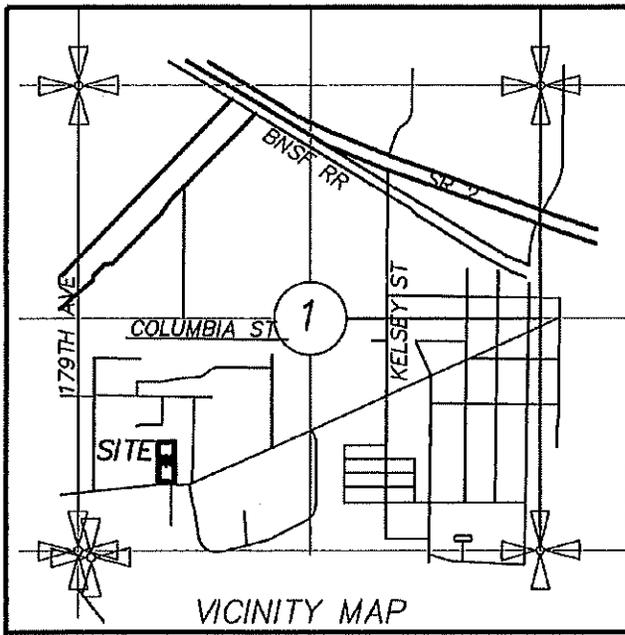
CITY OF MONROE

LAND USE PUBLIC HEARING



NOTICE is hereby given that a PUBLIC HEARING is scheduled to be held on the proposed MAIN BROOK TOWNHOMES PRELIMINARY PLAT MAJOR AMENDMENT on FRIDAY, MAY 3rd, 2019 AT 4:00 P.M. by the City of Monroe Hearing Examiner in the Council Chambers at City Hall, located at 806 West Main St., Monroe WA. **PROJECT NAME:** Main Brook Townhomes Preliminary Plat Major Amendment **PROJECT FILE#:** PLMA2019-01 **APPLICANT:** Hanson Homes at Main Brook, LLC, PO Box 2289 Snohomish, WA 98291 **PROJECT LOCATION:** The site is located at Section 1 Township 27 Range 6 Quarter SW LOT 4 OF CITY OF MON SP 199008 REC AFN 199912215006 BEING A PTN OF SW1/4 SW1/4; otherwise known as XXXX W. Main Street, Monroe, Washington, 98272. Snohomish County Tax Parcel Number(s): 27060100310200, 27060100310300, and 27060100310400. **PROJECT DESCRIPTION:** The applicant, Hanson Homes, is requesting a major amendment to the approved Preliminary Plat of Main Brook Townhomes. The original approval was for a 19-lot subdivision containing eighteen (18) zero lot-line townhome lots and one (1) commercial lot to be developed in two (2) phases on approximately 1.42 acres in the Mixed-Use Commercial (MUC) zoning district. The major amendment proposes to change the use of lot 19 from commercial to residential for a 10-unit apartment building. **PUBLIC COMMENTS:** Anyone wishing to comment on the above item or to provide other relevant information may do so in writing or appear in person before the Hearing Examiner at the time and place of said public hearing. The Hearing Examiner is required to issue a final decision on this project pursuant to MMC 21.50.030(D). The Hearing Examiner's decision will be final and issued within 10 days of the public hearing. **PUBLIC REVIEW OF DOCUMENTS:** The file is available for review during regular business hours, 8:00 a.m. - 5:00 p.m., Monday - Friday at Monroe City Hall, 806 West Main Street, Monroe WA. For more information, please contact Kim Shaw at (360) 863-4532 or kshaw@monroewa.gov. Project information is also available on the city's website at: www.monroewa.gov/mainbrook. **STAFF CONTACT:** Anita Marrero, Senior Planner, at (360) 863-4513 or amarrero@monroewa.gov.

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**Main Brook Townhomes Major Plat Amendment
City of Monroe File #PLMA2019-01**

This area is reserved for
addressing, any area in white
can be used for your content.

OwnerNmFirst	OwnerNmLast	OwnerAddr	OwnerCityNm	OwnerState	OwnerZIP
Smiley	Creswell	1 Academy Way	Monroe	WA	98272
Monroe Christian School		1009 W Main St	Monroe	WA	98272
Christian Reformed Church-Monroe		1012 W Main St	Monroe	WA	98272
Joseph	Moore	1017 W Main St Apt D101	Monroe	WA	98272
Michael	Hollack	1060 Johnson St SE	Monroe	WA	98272
William & Valeria	Barschaw	1087 Hidden Valley Rd	Cle Elum	WA	98922
Sahar	Siddiq	11013 Meridian Dr SE	Everett	WA	98208
Mary	Ottini	1102 W Main St	Monroe	WA	98272
Leonard	Rich	1103 W Main St	Monroe	WA	98272
Lourdes	Hernandez-Salazar	1113 W Main St	Monroe	WA	98272
Jayce	Sanders	1118 156th Pl SE Apt D40	Mill Creek	WA	98272
David	Glenn	1118 Johnson St SE	Monroe	WA	98272
Howard Kenneth	Shelton	1136 159th St SE	Monroe	WA	98272
Arnie & Maria	Meza	1152 Johnson St SE	Monroe	WA	98272
The Downie Family LLC		1188 Village Way	Monroe	WA	98272
J Michael	Gallagher	1203 W Main St	Monroe	WA	98272
Current Resident		1230 W Main St	Monroe	WA	98272
Richard	Fredlund	12303 NE 147th Ct	Kirkland	WA	98034
Rutledge-Monroe 1 LLC		12509 130th Ln NE	Kirkland	WA	98034
Lagniappe Investments LLC		12821 NE 36th St	Bellevue	WA	98005
Triple Down LLC		12821 NE 36th St	Bellevue	WA	98005
Dorothy	Clark	13309 208th Ave SE	Monroe	WA	98272
Denis	Porter	148 Academy Way	Monroe	WA	98272
NgY Chhe	Chhour	14911 Chain Lake Rd Apt M387	Monroe	WA	98272
Monroe Valley Church Of Christ		15915 179th Ave SE	Monroe	WA	98272
Sorn	Sutter	15919 179th Ave SE	Monroe	WA	98272
Steven & Chaipayathna Darawan	Morrison	15921 179th Ave SE	Monroe	WA	98272
Current Resident		15925 179th Ave SE	Monroe	WA	98272
Sharon	Morency	16005 Dennis Way	Monroe	WA	98272
Michael & Sandra	Condo	16014 Dennis Wy	Monroe	WA	98272
Greg	Hetland	166 Academy Way	Monroe	WA	98272
Tibltres	Bereket	16605 6th Ave W Unit K201	Lynnwood	WA	98037
Monroe Professional Center LLC	Attn: Dr. Irene V Chasen, Manager	16784 NE 86th Crt	Redmond	WA	98052
Richard & Mary	White	177 Academy Way	Monroe	WA	98272
Judith	Carberry	18042 159th St SE	Monroe	WA	98272
Kelli	Campbell	18054 159th St SE Unit B	Monroe	WA	98272
Donald & Jean Trust	O'Connor	18088 159th St SE	Monroe	WA	98272
Eric	Harting	181 Academy Way	Monroe	WA	98272
Carolyn	Lunn	18106 159th St SE	Monroe	WA	98272
Arthur & Denise	Gulas	184 Academy Way	Monroe	WA	98272
Ryan	Dilsaver	18463 Blueberry Ln No H303	Monroe	WA	98272
Monroe School Dist 103		200 E Fremont St.	Monroe	WA	98272

Heather Holmes & Aaron Joseph	Goldstein	2207 W Lake Sammamish Pkwy SE	Bellevue	WA	98008
Darlene	Helm	22207 Dubuque Rd	Snohomish	WA	98290
Donald & Shirley	Thayer	241 Dennis Way	Monroe	WA	98272
Victoria & Hilliard Paul	Smith	246 Dennis Way	Monroe	WA	98272
Delana	Reeves	253 Dennis Way	Monroe	WA	98272
Lawrence & Kimberlea	Green	258 Dennis Way	Monroe	WA	98272
Eutiquio Martinez	Garcia	26702 Ben Howard Rd	Monroe	WA	98272
Gail & Jeffrey	Jones	270 Dennis Way	Monroe	WA	98272
Timothy & Joette	Cochran	273 Dennis Way	Monroe	WA	98272
Christopher & Camren	Vivolo	280 Dennis Way	Monroe	WA	98272
David & Winifred	McCune	283 Dennis Way	Monroe	WA	98272
Gary & Jodi	Hazen	284 Dennis Way	Monroe	WA	98272
Linda & Boyd	Hill Sr	287 Dennis Way	Monroe	WA	98272
Robert & Janet	Russell	294 Dennis Way	Monroe	WA	98272
David & Cindy	Lang	297 Dennis Way	Monroe	WA	98272
Current Resident		310 Orr St	Monroe	WA	98272
Best Life Properties LLC		31115 Cherry Valley Rd	Duvall	WA	98019
David	Rintala	314 Dennis Way	Monroe	WA	98272
Keven & Gayle	McGinnis	315 Dennis Way	Monroe	WA	98272
Current Resident		316 S Kelsey St Apt 1	Monroe	WA	98272
Western Wash Seventh-Day Adventists		32229 Weyerhaeuser Way S	Federal Way	WA	98001
Norma	Marshall	324 Dennis Way	Monroe	WA	98272
Lowell & Kathleen	Braaten	325 Dennis Way	Monroe	WA	98272
John & Nancy	Wolf	328 Dennis Way	Monroe	WA	98272
Harriet	Ferguson	329 Dennis Way	Monroe	WA	98272
Barbara	McLaren	338 Dennis Way	Monroe	WA	98272
Rachel	Moser	339 Dennis Way	Monroe	WA	98272
Kurt	Nowadnick	703 Aiden Ave	Monroe	WA	98272
Daniel & Rhonda	Williams	704 Lawrence St	Monroe	WA	98272
Charles Edward & Andrea Jhonne	Swanson	705 Alden St	Monroe	WA	98272
Blick Shirley R Trust		707 Alden Ave	Monroe	WA	98272
Kimberly	Kussman	709 Lawrence St	Monroe	WA	98272
Donald	White Jr	715 Lawrence St	Monroe	WA	98272
Robert Michael	Berg	717 Lawrence Ave	Monroe	WA	98272
Donald	Wiens	719 Lawrence St	Monroe	WA	98272
Dwight	Pruitt	722 Lawrence St	Monroe	WA	98272
Wade	Brickman	8002 156th St SE	Snohomish	WA	98296
City of Monroe		806 W Main St	Monroe	WA	98272
Nusreta	Aksamovic-Madesko	837 Pine St	Everett	WA	98201
Double Down Holding Company LLC		P O Box 1001	Clinton	WA	98236
Larry & Marjorie	McKay	P O Box 880	Monroe	WA	98272
Raymond & Elizabeth	Neibert	PO Box 1567	Monroe	WA	98272
William & Mary	Clark	PO Box 165	Monroe	WA	98272
Hanson Homes @ Main Brook, LLC		PO Box 2289	Snohomish	WA	98291
Compass Health-Monroe		PO Box 3810	Everett	WA	98213
Harmony House East Association		PO Box 419	Everett	WA	98206

AFFIDAVIT OF POSTING NOTICE OF LAND USE PUBIC HEARING

STATE OF WASHINGTON)

XXXX W. Main St., Monroe WA. 98272 (tax
parcel #'s 27060100310200 / 27060100310300 /
27060100310400

Project location

Main Brook Townhomes – Major Plat
Amendment (PLMA2019-01)

COUNTY OF SNOHOMISH)

Application Name and File Number

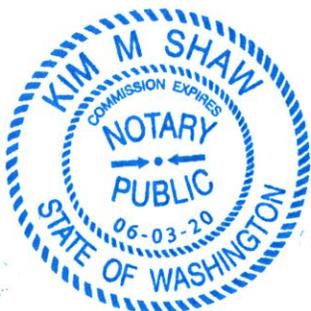
I, Ron Payton (print name) being first duly sworn on oath, depose and say:
That I am a citizen of the United States of America; That I am competent to be witness
herein; That on the 19th day of April 2019, that I posted one sign for the Main
Brook Townhomes Major Plat Amendment Notice of Public Hearing on or near the
property concerned, in a conspicuous place; and the correct date of posting of said notice,
to wit:

XXXX W Main St. Monroe WA. 98272 (see above for tax parcel #'s)
LOCATION OF NOTICE

Ron Payton
Signed

Subscribed and sworn to me this 19th day of April, 20 19

NOTARY SEAL



Kim M. Shaw
NOTARY PUBLIC in and for the State of
Washington, residing at:

Snohomish County

Printed Name: Kim M. Shaw

My commission expires: 6/3/2020

AFFIDAVIT OF POSTING NOTICE OF PUBLIC HEARING

STATE OF WASHINGTON) XXXX W Main St., Monroe, WA 98272
Project location

COUNTY OF SNOHOMISH) Main Brook Townhomes Major Plat
Amendment (PLMA2019-01)
Application Name and File Number

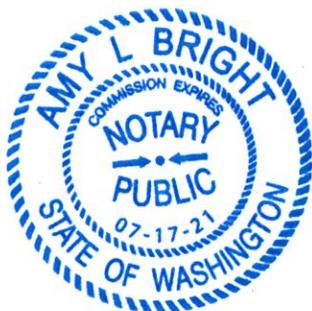
I, Kim Shaw being first duly sworn on oath, depose and say: That I am a citizen of the United States of America; That I am competent to be witness herein; That on the 19th day of April, 2019, that I posted (2) Notice of Public Hearing for the Main Brook Townhomes Major Plat Amendment at Monroe City Hall and the Monroe Library at the following addresses:

806 West Main Street, Monroe, WA 98272 / 1070 Village Way, Monroe, WA 98272
Location of notice

Kim Shaw
Signed

Subscribed and sworn to me this 19th day of April, 2019

NOTARY SEAL



C. SGA
NOTARY PUBLIC in and for the State of Washington, residing at:

Monroe, Snohomish, WA

Printed Name: Amy Bright

My commission expires: 7/17/2021

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EXHIBITS

Exhibits 1-14 in the “List of Exhibits” attached to the February 15, 2018 staff report were admitted into the record during the February 22, 2018 hearing.

FINDINGS OF FACT

Procedural:

1. Applicant. The Applicant’s agent is Ry McDuffy, Orca Land Surveying, 3605 Colby Avenue, Everett, WA 98201. The Applicant is Rick Hanson, Hanson Homes at Main Brook, LLC, PO Box 2289, Snohomish, WA 98291.

2. Hearing. The examiner held a hearing on February 22, 2018 at 10:00 am at the Monroe City Hall in the Council Chambers.

Substantive:

3. Site Proposal/Description. The Applicant has applied for approval of a preliminary plat to subdivide approximately 1.42 acres into 19 lots containing eighteen (18) zero lot-line townhome lots and one (1) commercial lot on a project site abutting the north side of West Main street. The project site is composed of Snohomish County Tax Parcel Numbers 27060100310200, 27060100310300, and 27060100310400. The project site is vacant and contains a parking lot.

4. Characteristics of the Area. The project area is surrounded by Mixed Use Commercial (MUC) zoned property. Adjoining lots to the north and south are developed with single-family homes. The lot to the west has a nursing home and property to the east is composed of a mix of a single-family home, multi-family development and commercial use.

5. Adverse Impacts. As conditioned, there are no adverse impacts associated with the development. As determined in Finding of Fact No. 6 the proposed subdivision will be served by adequate infrastructure. The SEPA Responsible Official issued a Determination of Non-significance on December 15, 2017. Pertinent impacts are addressed more specifically below:

A. Critical Areas. There are no critical areas on the project site.

B. Compatibility. The proposed commercial use directly abutting West Main street is compatible with the mixed-use character of that street as well as the mixed uses directly abutting the project site to the east and west along West Main Street. The residential uses in the back (north) side of the proposal are consistent with the single-family residential use located to the north.

1 6. Adequacy of Infrastructure/Public Services. The project will be served by adequate
2 and appropriate infrastructure and public services. All applicable level of service
standards for services and facilities are met as identified at Finding No. D6 and D10 of
the staff report. Adequacy is more specifically addressed as outlined below:

3 A. Water and Sewer Service. The City of Monroe will provide water and sewer
4 service. According to City of Monroe staff as noted in the staff report, there is
5 sufficient capacity available in the City's public water and sanitary sewer
6 system to serve the proposed subdivision. All lots will connect to the City's
water and sewer system.

7 B. Fire and Police Protection Fire District No. 7 will provide fire protection. The
8 City of Monroe Police Department will provide police protection. Neither the
9 Fire District nor the police chief cited any level of service concerns when they
10 reviewed the proposal. Fire safety measures recommended by the Fire District
pursuant to the International Fire Code has been adopted as conditions of
approval. See Condition No. 11.

11 C. Drainage. The Applicant has submitted a Drainage Report, Ex. 11, that lays out
12 the preliminary drainage plan for the project site. The preliminary design
13 involves installing a conveyance system to collect on-site stormwater generated
by new on-site access, parking, roof and landscaping areas and directing the
stormwater into on-site infiltration trenches located throughout the project site.

14 Final stormwater design plans will be reviewed and approved by City staff as
15 part of the civil plan review process leading to final plat approval. Stormwater
16 management will be designed to meet the requirements of the 2014 Department
of Ecology Storm Water Management Manual for Western Washington as
17 administered by the City Engineer. Any future permitted activities, such as
18 building permits, will also have to comply with the provisions of the Storm
Water Management Manual and any updates to the Manual as vested under
applicable state law.

19 D. Parks/Open Space. Open space is required for the residential portions of the
20 proposal pursuant to MMC 18.78.080. MMC 18.78.080 requires a total of
21 3,060 square feet of open space for the project site. The proposal provides for
22 3,166 square feet. Tract 998 (749 sq. ft.) is open space and Tract 999 (2,417
sq. ft.) will contain a play structure, bench, landscaping, and fencing (Exhibit
14).

23 Impacts to the City park and recreation system from the anticipated additional
24 public park users will be mitigated. In accordance with the City's park impact
25 mitigation fees established under MMC Chapter 20.10, impact fees require a
standard fee amount per dwelling unit as a condition of residential development
within the city. Park impact fees shall be paid in accordance with MMC 20.10.

1 Park impact fees shall be based on the fee amount in effect at the time of
2 payment.

3 E. Schools. Impacts to the Monroe Public Schools and the Snohomish School
4 District in the form of additional students are addressed through mitigation
5 programs. The City of Monroe has adopted the Monroe and Snohomish School
6 District 2016 - 2021 Capital Facilities Plan and imposes impact fees for schools
7 in accordance with those plans and MMC Chapter 20.07. School mitigation fees
8 require a standard fee amount per dwelling unit as a condition of residential
9 development within the city. School impact fees are based on the amount in
10 effect at the time of payment.

11 RCW 58.17.110(2) requires the City to make a finding that the proposed
12 subdivision assures “*safe walking conditions for students who only walk to and
13 from school.*” Students will walk from the development to Frank Wagner
14 Elementary School and Park Place Middle School. Students will be bussed
15 from the development to Monroe High School by the Monroe School District.
16 Sidewalks will be installed on one side of Road ‘A’ and will extend to West
17 Main Street providing safe walking conditions. The public streets fronting on
18 and/or adjacent to the subdivision include sidewalks on all sides of the street as
19 well as sidewalk along the property frontage along West Main Street.

20 F. Streets and Traffic. Access to the subdivision is proposed via West Main Street.
21 Internal access to individual lots will be provided through a private road ‘A’
22 and ‘B’ (Tract 997). Road ‘A’ is 30’, 2-10’ travel lanes and a 5’ sidewalk on
23 one side. Road ‘B’ is 20’, 2-10’ travel lanes. The proposed private road design
24 was approved by the Public Works Director. Frontage improvements along
25 West Main Street are already installed which includes curb and gutter, and a
five-foot wide sidewalk along the entire length of the site frontage. An ADA
ramp and new driveway approach will be installed at the entrance of West Main
Street.

Traffic control devices and street signs shall be installed prior to final plat
approval, and all private roads within the subdivision shall be constructed in
accordance with the City’s Public Works Design and Construction Standards
and installed by the developer to the satisfaction of the City Engineer prior to
final plat approval.

Based on the Traffic Impact Study dated September 2017 (Exhibit 13), the
development is anticipated to generate approximately 23.44 AM peak-hour
trips and 32.85 PM peak-hour trips. The level of service analysis shows that all
study intersections in the TIA are anticipated to operate within acceptable level
of service thresholds.

Impacts to the City’s transportation system are mitigated through the collection
of traffic mitigation fees. In accordance with the City’s traffic impact fee

1 program under MMC Chapter 20.12, impact fees require a standard fee amount
2 per dwelling unit as a condition of residential development within the City.
3 Traffic impact fees shall be paid in accordance with MMC Chapter 20.12 and
4 shall be based on the amount in effect at the time of payment. Frontage
5 improvements and paving, including curb, gutter, sidewalk, and street trees
6 shall be installed along all private streets within the subdivision in accordance
7 with the City's Public Works Design and Construction Standards.

8 **CONCLUSIONS OF LAW**

9 **Procedural:**

10 1. Authority of Hearing Examiner. MMC 21.20.050(F) provides that the Examiner
11 shall hold hearings and make final decisions on applications for preliminary plat
12 approval.

13 **Substantive:**

14 2. Zoning and Comprehensive Plan Designation. The project site is zoned Mixed Use
15 Commercial (MUC). The Comprehensive Plan land use designation is Mixed Use.

16 3. Review Criteria and Application. Subdivision criteria are specifically governed by
17 MMC 17.12.030(H). In addition, MMC 21.50.030(C) imposes standards that apply to
18 all development reviewed by the hearings examiner. Applicable code provisions are
19 quoted below in italics and applied through corresponding Conclusions of Law.

20 **Subdivision Criteria**

21 **MMC 17.12.030(H):** ... *The hearing authority shall inquire into how the public interest
22 of future residents of the preliminary plat are to be served by the subdivision and its
23 dedications. It shall determine if provisions are made to protect the public health, safety
24 and general welfare by the provision of open spaces, drainage ways, streets, alleys,
25 other public ways, water supplies, sanitary waste, parks, playgrounds, sites for schools
and school grounds and shall consider all other relevant facts and determine whether
the public interest of the future residents of the subdivision will be served by the
dedications therein:*

*1. The hearing authority shall consider if the proposed subdivision conforms to the
comprehensive plan and the Shoreline Master Program;*

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- 2. *The hearing authority shall consider the physical characteristics of a proposed subdivision site and may recommend disapproval of a proposed plat because of improper protection from floods, inundation or wetland conditions;*
- 3. *All identified direct impacts must be mitigated or meet concurrency as set forth in MMC Title 20.*

4. The criterion is met. Adequate provisions are made for infrastructure and there are adequate public services available as determined in Finding of Fact No. 6. Beyond infrastructure and public service needs, the project adequately provides for the public health, safety and general welfare because there are no significant adverse impacts associated with the proposal as determined in Finding of Fact No. 5. The proposal serves to satisfy the City’s obligations to accommodate its growth population targets assigned by Snohomish County under the Growth Management Act, Chapter 36.70C RCW. The project is consistent with the comprehensive plan because the proposed 18 dwelling units are within the 17-28 dwelling units authorized in the MUC zone for the project as detailed in Finding No. 4 of the staff report. The project is more than 200 feet from any shoreline of the state or associated wetland and is, therefore, not subject to the jurisdiction of the Shoreline Management Act. The site is not in a floodplain and no other critical areas are present at the site as noted in Finding of Fact No. 5. The proposal meets all applicable level of service standards and will be served by adequate and appropriate infrastructure as determined in Finding of Fact No. 6.

MMC 21.50.030(C): Required Findings. *In drafting a recommendation, the hearing examiner shall address the following, as required in the findings of fact:*

- 1. *The development is consistent with the comprehensive plan and meets the requirements and intent of this code.*
- 2. *The development makes adequate provisions, if appropriate, for open space, drainage ways, streets and other public ways, transit stops, water supply, sanitary wastes, parks and recreation facilities, playgrounds, sites for schools and school grounds.*
- 3. *The development adequately mitigates impacts identified under Chapters 17.12, 18.84, and 20.04 MMC, and the sensitive area guidelines adopted by resolution.*
- 4. *The development is beneficial to the public health, safety and welfare and is in the public interest.*
- 5. *The development does not lower the level of service on the following public facilities and services below the minimum standards established within the comprehensive plan:*
 - a. *Potable water;*
 - b. *Wastewater;*

- c. Storm water drainage;*
- d. Police and fire protection;*
- e. Parks and recreation;*
- f. Arterial roadways; and*
- g. Public schools.*

If the development results in a level of service lower than those set forth in the comprehensive plan, the development may be approved if improvements or strategies to raise the level of service above the minimum standard are made concurrent with the development, subject to the requirements of Chapter 20.06 MMC.

6. The area, location, and features of land proposed for dedication are a direct result of the development proposal, are reasonably needed to mitigate the effects of development, and are proportional to the impacts created by the development.

5. The criterion is met. As noted in Finding of Fact No. 6, the proposal does not lower level of service standards for public services below adopted levels and the proposal will be served by adequate and appropriate public infrastructure and services. The proposal is consistent with the comprehensive plan as determined in Conclusion of Law No. 4. As conditioned, there are no significant adverse impacts associated with the proposal as determined in Finding of Fact No. 5. Since there are no significant adverse impacts associated with the proposal and the proposal helps to accommodate GMA required growth targets, the proposal is beneficial to public health, safety and welfare and is in the public interest. There do not appear to be any significant dedications to the public associated with the proposal as the interior road and the proposed open space tracts will all remain private and most of the required frontage improvements for West Main are already in place. Staff have assessed compliance of the subdivision against all applicable zoning code requirements as detailed in the staff report and found no inconsistencies. As no inconsistencies are apparent from the record, it is concluded that the proposal is consistent with the zoning code.

DECISION

1
2 The proposed preliminary plat is found to be consistent with all applicable development
3 regulations for the reasons identified in the Conclusions of Law above. The proposed
4 preliminary plat¹ is approved, subject to the following conditions:

5 1. All improvements shall be constructed in accordance with the approved
6 preliminary plat map with the date stamp of January 17, 2018. Minor modifications of
7 the plans submitted, as described in MMC 18.84.210 (e.g. BLA or reduction in total
8 number of lots), may be approved by the Community Development Director or his/her
9 designee if the modifications do not change the Findings of Fact or the Conditions of
10 Approval.

11 2. Final engineering drawings depicting the street improvements, water and
12 sewer improvements, and drainage design shall be submitted to the City's Public Works
13 Director for final review and approval before issuance of any grading permits. The
14 street, water and sewer, and drainage improvements shall be designed in accordance
15 with the City's most current Public Works Design and Construction Standards.

16 3. The project shall implement all of the applicable recommendations
17 contained in the following technical reports submitted to the City:

18 a) Storm Drainage Report, prepared by Joseph M. Smeby, PE, dated
19 September 2017 (Exhibit 11).

20 b) Geotechnical Report, prepared by Liu & Associates, dated March 31, 2017
21 (Exhibit 12).

22 c) Traffic Report, prepared by GTC, dated September 2017 (Exhibit 13).

23 **CLEARING AND GRADING**

24 4. A comprehensive erosion and sedimentation control plan to ensure
25 appropriate on-site and off-site water quality control shall be developed and
implemented for all construction activities. The Best Management Practices outlined in
the 2014 DOE Stormwater Management Manual for Western Washington shall be

¹ The proposal is as depicted in Ex. 3, with the proviso that the gravel parking lot depicted for proposed Lot 19 and any half-street sidewalks depicted in Ex. 3 shall not be considered approved by this decision to the extent that a deviation approved by City staff is required for those design features. No deviation requests have been consolidated with this decision.

1 incorporated into the design. At a minimum, the plan shall include the following
2 elements:

3 a) Exposed soils shall be stabilized and protected with straw, hydro-seeding or
4 other appropriate materials to limit the extent and duration of exposure;

5 b) Disturbed areas shall be protected from storm water runoff impacts through
6 the use of silt fence. Other means of filtration of storm water runoff and for limiting
7 erosion/sedimentation such as check dams, and sediment traps may be required and are
8 recommended.

9 c) Clearing and grading activities shall not be performed in the winter-wet
10 season when soils are unstable.

11 **Storm Drainage Improvements**

12 5. The stormwater system design and stormwater discharge shall utilize the Best
13 Management Practices of the 2014 DOE Stormwater Management Manual for Western
14 Washington.

15 6. Stormwater pollution prevention measures shall be employed per the
16 approved Stormwater Pollution Prevention Plan and as necessary to ensure appropriate
17 on-site and off-site water quality control. Site runoff during construction shall be
18 handled and treated as to quantity and quality impacts by utilizing Best Management
19 Practices, as defined in the 2014 DOE Stormwater Management Manual for Western
20 Washington.

21 7. The developer shall obtain a General Construction Stormwater NPDES
22 Permit from the WA Department of Ecology (DOE) prior to beginning construction.

23 **ROAD IMPROVEMENTS**

24 8. Frontage improvements, including curb, gutter, sidewalk, street trees, and
25 traffic control devices shall be provided for all streets within the subdivision; shall be
constructed in accordance with the City's most current Public Works Design and
Construction Standards; and are to be installed by the developer to the satisfaction of
the City Engineer prior to final plat application.

Landscaping

9. Street trees shall be included in the street planter strips per the approved
landscape plan. Street trees shall be planted when a street frontage is fully owner
occupied and as directed by the City of Monroe Planning Department. The City will
coordinate tree plantings to the most favorable time of the year for plant survival. All
street frontage landscaping/irrigation improvements shall be bonded until such time that
housing construction is completed and bonded work may be completed without risk of
construction damage.

10. Irrigation is required for all street trees and newly planted vegetation within
the right-of-way and within Tracts (where applicable and required by the City). The
applicant shall submit an irrigation plan prior to construction for review and approval
by the City.

1 **FIRE**

2 11. The following requirements shall be adhered to during construction and
3 completed before occupancy of any structure in accordance with the 2015 International
4 Fire Code:

5 • Fire hydrants shall be provided in accordance with city standards and the
6 direction of the Fire Marshal

7 • Fire Hydrants shall be installed as per fire flow and spacing requirements
8 specified for the type of development with regards to distances to structures;

9 • Fire hydrants shall be equipped with four- (4) inch quarter-turn Storz adapters;

10 • An access route, for fire fighting apparatus, must be provided at the start of
11 construction. Minimum access route requirements include a 20' width, 13'6" vertical
12 height clearance, and the ability to support a load up to 75,000 pounds;

13 • All buildings must be addressed visibly and legibly from the road. When
14 buildings are not visible from the street, appropriate provisions must be made to identify
15 clearly which road or drive serves the appropriate address including private roads.

16 • Fire sprinklers are required for all residential units and future development.

17 • No parking signs are required as directed by the Fire Marshal for all streets with
18 a width less than 32' and within turnaround areas.

19 **FEES**

20 12. Prior to approval of the final plat, all landscaping associated with the plat
21 shall require the submittal of an acceptable warranty surety to warrant all required
22 landscaping improvements against defects in labor materials for a period of 24 months
23 after acceptance of those improvements by the City. The warranty amount shall be
24 equal to fifteen (15) percent of the costs of the improvements, as determined by the
25 Community Development Director.

19 13. Prior to approval of the final plat, the developer shall submit an acceptable
20 warranty surety to warrant all required public improvements, installed, against defects
21 in labor and materials for a period of 24 months after acceptance of those improvements
22 by the City. The warranty amount shall be equal to ten (10) percent of the costs of the
23 improvements, as determined by the Public Works Director. The surety shall be
24 submitted to and approved by the City of Monroe and executed prior to final plat
25 approval.

19 14. Park, Traffic and School impact fees assessed in accordance with MMC
20 Chapters 20.07, 20.10 and 20.12 shall be required and paid at the rate in effect at the
21 time of building permit issuance.

22 15. The water system capital improvement charge, in accordance with MMC
23 Section 13.04.025, shall be required and paid prior to building permit issuance.

16. The wastewater system capital improvement charge, in accordance with MMC Section 13.08.270, shall be required and paid prior to building permit issuance.

FINAL PLAT

17. Prior to Final Plat submittal, all improvements shall be installed, inspected, and approved by the City Engineer per the approved plans. All improvements shall be constructed in accordance with the approved engineering plans and preliminary plat map. Minor modifications of the plans submitted may be approved by the Community Development Director or Public Works Director if the modifications do not change the Preliminary Plat Findings of Fact or Conditions of Approval.

18. All lot corners shall be installed with rod and cap or other City-approved survey method prior to Final Plat approval.

19. All existing and proposed easements and maintenance agreements shall be clearly shown and labeled on the final plat.

20. The following note shall appear on the face of the Final Plat Map: “The Homeowners Association is responsible for maintaining, in a uniform manner, all landscaping and irrigation within all commonly owned Tracts and easements.”

21. The following Waiver of Claims for Damages Statement shall appear on the face of the Final Plat Map: “This dedication includes conveyance of roads, tracts, utility and storm drainage infrastructure, and other areas of right-of-way intended for public use and/or ownership as shown on or otherwise referenced by the plat. The [insert name here] hereby waives all claims against the City of Monroe and/or any other governmental authority for damages which may occur to the adjacent land as a result of the construction, drainage and maintenance of such facilities and improvements.”

22. If the final plat contains dedication of land for public purposes, it shall contain the following statement:

“Know all men by these presents that (name of developer) do hereby declare this plat and dedicate to the public forever all roads and ways and other public property shown hereon, and the use thereof for any and all public purposes, with the right to make all necessary slopes for cuts and fills, and the right to continue to drain the roads and ways over and across any lot or lots, where water might take a natural course, in the original reasonable grading of the roads and ways shown hereon.

Following original reasonable grading of roads and ways hereon, no drainage waters on any lot or lots shall be diverted or blocked from their natural course so as to discharge upon any public road rights-of-way, or to hamper proper road drainage. Any enclosing of drainage waters in culverts or drains or rerouting thereof across any lot as may be undertaken by or for the owner of such lot shall be done by and at the expense of such owner, but only after approval by the city engineer.”

23. The following shall be shown on the recording block section of the plat map: “Refer to Auditor Recording Number.”

1 24. The final plat shall provide space for the approving signatures of the
2 community development director, city engineer and the mayor, and the city clerk shall
3 attest the signatures.

4 25. The title block on the final plat map shall have the names of all the legal
5 owners of the property named on the plat and the name of the surveyor/engineering firm
6 which prepared the final plat map.

7 26. An Auditor's Certificate shall be shown on the final plat map.

8 27. The following are required to be shown on the face of the final plat map:

- 9 • Surveyor Certificate;
- 10 • Correct legal description of all lots as set out in Chapter 58.17 RCW;
- 11 • Owners Statement;
- 12 • All new easement(s) over the property, their legal description(s) and associated
13 dedication block(s);
- 14 • Recording block/Certification blocks for City approval;
- 15 • North arrow;
- 16 • Certification of Payment of Taxes and Assessments;
- 17 • Auditor's Certificate; and
- 18 • The survey control scheme, monumentation, basis of bearing and references.

19 **MISCELLANEOUS**

20 28. The 30' existing ingress, egress, and utility easement (AFN 199912215006)
21 to the site shall be revised to include access to the proposed new lots before final plat
22 approval.

23 29. Preliminary plat approval shall be effective for a maximum time period of
24 five years upon which a final plat that meets all conditions of the preliminary plat
25 approval must be submitted, in accordance with MMC 17.12.020(A).

 30. All development within the mixed use commercial zone shall comply with
 the Infill, Multifamily, and Mixed Use Design Standards, subject to the requirements of
 MMC 18.10.132.

 31. The developer shall apply to the Snohomish County Auditor at 3000
 Rockefeller Avenue, Everett, WA 98201-4060 for a plat name reservation certificate
 and furnish the City with a copy of the approved reservation certificate at the time of
 final plat submittal.

 32. If applicable, at the time of final plat submittal the developer shall submit a
 group mailbox plan, approved by the U.S. Post Office, to the Planning Department for
 final addressing.

 33. Mail routes, including mailbox types and locations, shall be approved by
 the Postmaster prior to construction.

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DETERMINATION OF NON-SIGNIFICANCE (DNS)

File Number: SEPA 2017-14

Name of Proposal: Main Brook Townhomes Preliminary Plat

Description of Proposal: The applicant, Hanson Homes, is requesting preliminary plat approval for a 21-lot subdivision containing eighteen (18) zero lot-line townhome lots and three (3) commercial lots to be developed in two (2) phases on approximately 1.42 acres in the Mixed-Use Commercial (MUC) zoning district.

Proponents: Rick Hanson
Hanson Homes
PO Box 2289
Snohomish, WA 98291

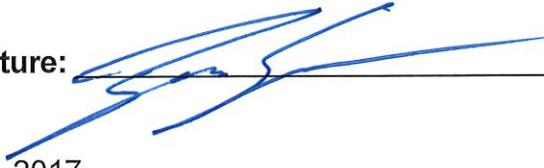
Location of Proposal: The site is located at Section 1 Township 27 Range 6 Quarter SW LOT 4 OF CITY OF MON SP 199008 REC AFN 199912215006 BEING A PTN OF SW1/4 SW1/4; otherwise known as XXXX W. Main Street, Monroe, Washington, 98272. Snohomish County Tax Parcel Number(s): 27060100310200, 27060100310300, and 27060100310400.

Lead Agency: City of Monroe

Threshold Determination: The lead agency for this proposal has determined that it does not have a probable significant adverse impact on the environment. An environmental impact statement (EIS) IS NOT required under RCW 43.21C.030(2)(c). This decision was made after review of a completed environmental checklist and other information on file with the lead agency. This information is available to the public for review upon request at Monroe City Hall, 806 West Main Street, Monroe, WA 98272 between the hours of 8:00 a.m. and 5:00 p.m., Monday through Friday, excluding holidays. The information is also available for view online at www.monroewa.gov/mainbrook.

- There is no comment period for this DNS.
- This DNS is issued after using the optional DNS process in WAC 197-11-355. There is no further comment period on the DNS.
- This DNS is issued under WAC 197-11-340(2); the lead agency will not act on this proposal for 14 days from the date below. Comments must be submitted by **January 2, 2018**.

Responsible Official: Ben Swanson, Community Development Director
SEPA Responsible Official
(360) 863-4554
Monroe City Hall
806 West Main Street
Monroe, WA 98272
bswanson@monroewa.gov

Date: 12/12/17 **Signature:**  _____

Date of Issuance: December 15, 2017

Deadline for Submitting Comments/Appeals: No later than 5:00 p.m. on January 2, 2018

Appeals: You may appeal this determination to the City of Monroe Hearing Examiner at Monroe City Hall, which is located at 806 West Main Street, Monroe, WA 98272, no later than **5:00 p.m. on January 2, 2018**. You should be prepared to make specific factual objections; and you shall set forth the specific reason, rationale, and/or basis for the appeal. Appeals must be made in person on City appeal forms, which are available through the Community Development Department at Monroe City Hall. Appeals must be filed in original form in accordance with MMC Chapter 21.60. Payment of the appeal fee, as specified in the city's fee resolution, shall occur at the time the appeal is filed. Please contact Kim Shaw, Land Use Permit Supervisor, by email at kshaw@monroewa.gov or by phone at (360) 863-4532 to read or ask about the procedures for SEPA appeals.

Staff Contact: Questions about the proposal may be directed to Anita Marrero, Senior Planner, at amarrero@monroewa.gov or (360) 863-4513.



WEST ELEVATION



~~WEST ELEVATION~~ EAST ELEVATION

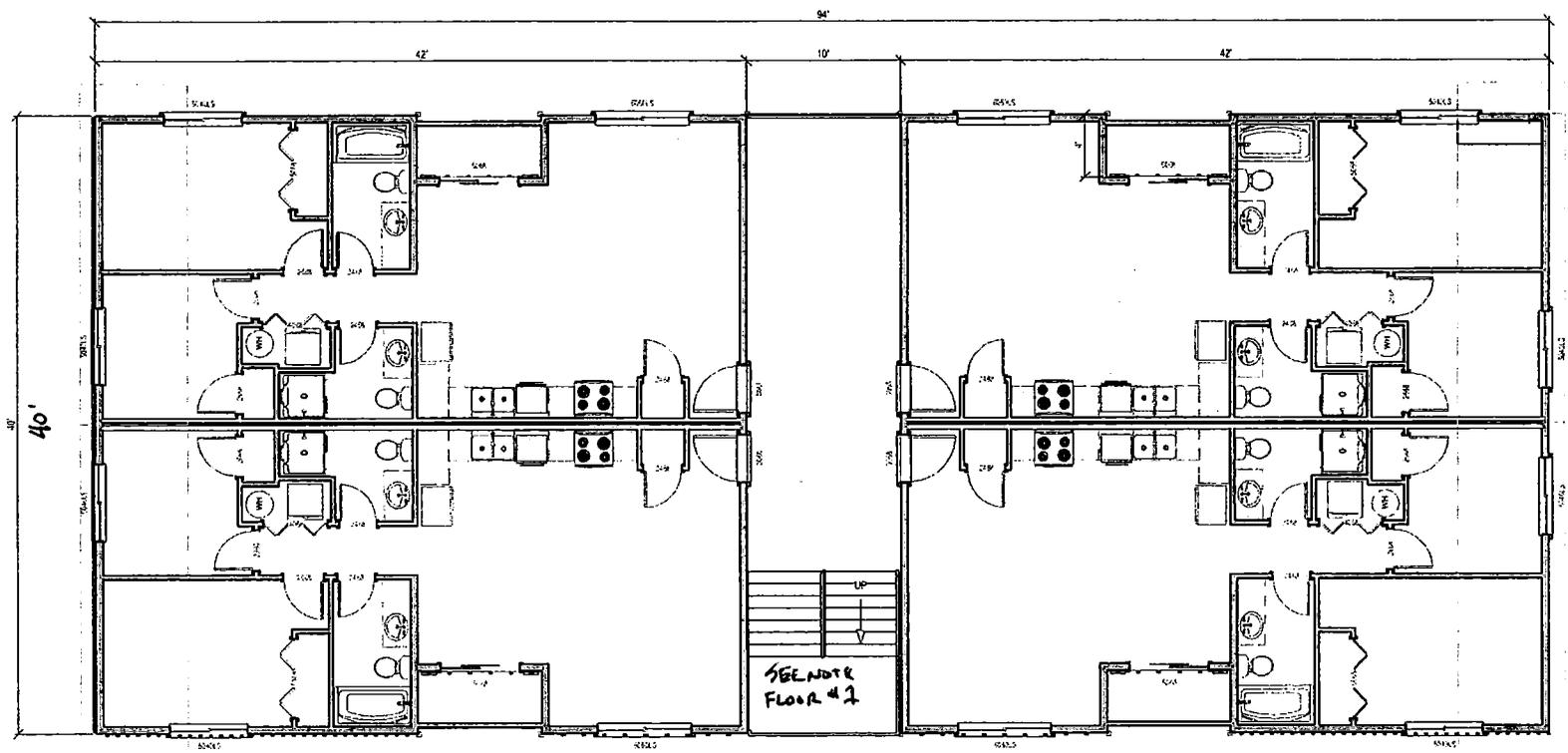


NORTH ELEVATION



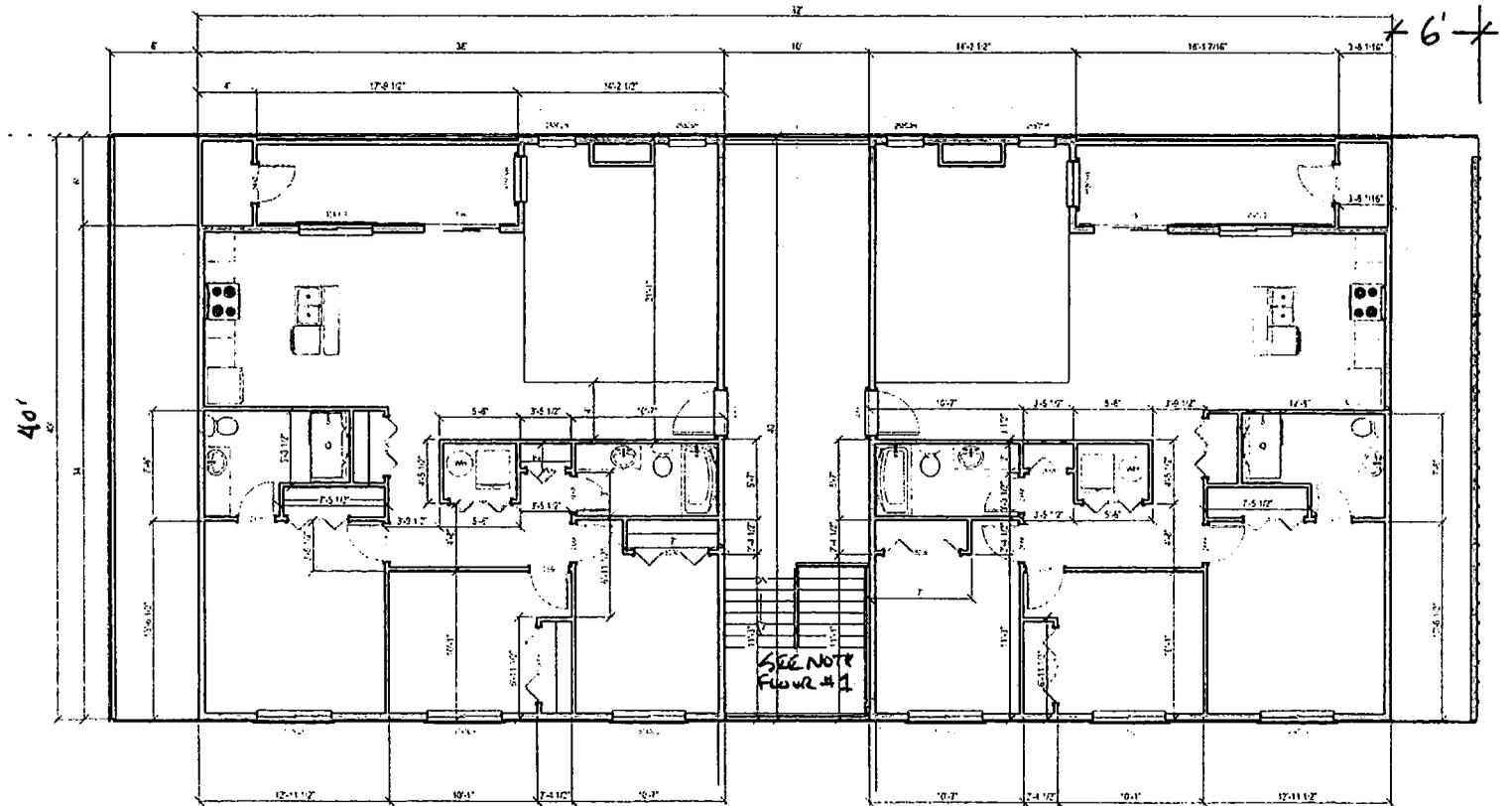
SOUTH ELEVATION

NORTH
→



2ND FLOOR
4-UNITS

NORTH
↑



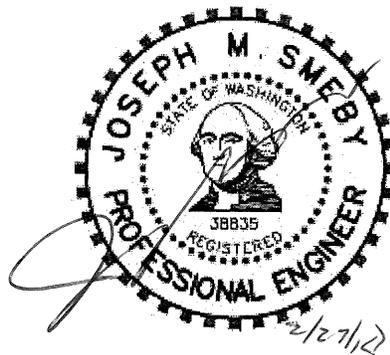
3RD FLOOR
2- UNITS

**Drainage Report
Mainbrook Townhomes
PFN: M2018-**

for

Rick Hansen
P.O. Box 2289
Snohomish, WA 98291

SITE LOCATION:
1237 West Main St.
Monroe, WA 98272



Prepared by:
Rachel A. Weinberg, E.I.T.

Checked by:
Joseph M. Smeby, P.E.

Job No: 17-0807
February 2018

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1. INTRODUCTION

This document is intended to provide engineering information necessary to support the construction plan application to the City of Monroe for an 18-unit townhome project with future commercial building(s) and parking proposed on this site. The site covers 1.42 acres, all of which is proposed to be disturbed as a result of this project. The site will take access from an existing road/drive aisle which will be improved on the east side and extended to the north to serve this project.

This project proposes to construct improvements to the existing private access. Some work within West Main St will be required to extend sewer and water services onto this property. This project will require the construction of driveways for each future townhome, parking for the future commercial building, stormwater facilities and other utilities. The existing on-site soils are highly permeable at a depth of 5-6' below existing grade. Therefore, infiltration will be viable for this project. Refer to the geotechnical report prepared by Liu and Associates.

2. DRAINAGE INFORMATION SUMMARY FORM

Project: **Mainbrook Townhomes**
 PFN: **M2018-**
 Engineer: **Omega Engineering, Inc.**
 2707 Wetmore Ave
 Everett, WA 98201
 Attention: Joseph Smeby, P.E.

Total site area: **1.42 acres**
 Offsite area: **0.00 acres**
 Disturbed area: **1.38 acres**

Applicant: **Hanson Homes**
 P.O. Box 2289
 Snohomish, WA 98291

Number of lots/Bldg: **5**

Drainage Basin Information	East Basin
On-site Developed Area	1.42 acres
Off-site Improved Area	0.00 acres
Types of storage proposed	Infiltration Trenches
Approximate total storage volume	Varies
Soil Types	Type A/B
Basin Data	
Pre-developed run-off rates: 2-year	0.002 cfs
50-year	0.014 cfs
Post-developed run-off rates: 2-year	0.00 cfs
50-year	0.00 cfs

3. EXISTING SITE CHARACTERISTICS and ASSUMPTIONS

The site is located north of West Main St. taking access off of an existing private access within an easement just west of Academy Way. The project is located in Section 1, Township 21N, Range 6E, Willamette Meridian. See Figure 1 - Vicinity Map. The entire property consists of a single lot totaling 1.42 acres.

Land use around the site is single-family residential to the north and east and commercial to the west and south. This site is currently vacant covered in grasses, brush and some trees. Frontage improvements will not be required West Main St but some utility work will occur within the R/W.

The existing site is irregular in shape approximately 450-feet long running north-south and 180-feet running east-west. The grades on the site are flat. The vegetation found on the existing property is a mixture of landscaping including grasses and shrubs and native vegetation.

Grades on the site generally run from south to north. The existing soils on this site are silty fine sand to a depth of 4-6' over gravelly fine to coarse sand to 9'+. Please refer to the attached geotechnical report in Appendix C for further discussion of the existing on-site soils. A site visit was conducted on August 8, 2017. The weather was clear with temperatures in the 70's. No surface water was observed on this site.

The soil hydrologic types for this site have been identified as Type C for the upper soil stratum and A/B for the lower stratum. The soil type mapped for this site is Sultan Silt Loam. However, soil tests on this site found permeable soils at 4-6'. Refer to Geotechnical Report in Appendix C. The project Geotech therefore has recommended that infiltration be used for this project.

4. NARRATIVE OF DEVELOPED SITE CHARACTERISTICS

This development proposes to create 5 new buildings totaling 18-units for this project. The infiltration systems will be designed to mitigate for all of the future hard surfaces and landscaping proposed for this project. The systems have been sized to meet the 2012 DOE stormwater flow control and water quality standards.

The new on-site access, parking, roof and landscaping areas will be collected in the on-site conveyance system and directed infiltration trenches spread around the site. The storm drainage system for this project has been designed to collect, treat and infiltrate all of the new landscaping and impervious areas on this site. The off-site impervious areas disturbed for the utility construction will not be accounted for since the land cover will not change as a result of this project.

The infiltration and water quality system has been designed using the WWHM2012 software which meets the City standards.

4A. DOE MINIMUM REQUIREMENTS

MINIMUM REQUIREMENT #1: PREPARATION OF STORMWATER SITE PLANS

This project proposes to construct new impervious surfaces in excess of the minimum threshold so a final storm water site plan is being prepared with the full engineering plans for this project.

MINIMUM REQUIREMENT #2: CONSTRUCTION STORMWATER POLLUTION PREVENTION (SWPPP)

1: Mark Clearing Limits

One of the first steps in the "Construction Sequence" included on the clearing and grading plan sheets is for a surveyor to stake the limits of clearing and to have construction or silt fencing placed along the limits prior to any other construction activity.

2: Establish Construction Access

The SWPPP calls for the proposed construction entrance to be installed as the second step after the staking of clearing limits. A detail is provided on the plans.

3: Control Flow Rates

This project will construct an interceptor swale system to capture site runoff and allow the water to infiltrate on-site in areas not proposed for future/permanent infiltration systems.

4: Install Sediment Controls

This site and SWPPP proposes to construct a construction entrance to collect and contain the sediment on this site. In addition, inlet filters will be installed in the existing catch basins adjacent to the site, and check dams will be installed in the on-site interceptor swales. The proposed on-site CBs will be installed with inlet filters but the outlet pipes connecting to infiltration trenches will be plugged until the site has been stabilized and the conveyance system flushed and cleaned. These features are intended to minimize the opportunity for sediment to leave the site via stormwater or on vehicles. The construction of these features is one of the first items required in the "Construction Sequence".

5: Stabilize Soils

The "Construction Sequence" and "TESC Notes" call for the stabilization of soils that remain unworked for certain lengths of time based on the time of year. Stabilization techniques may include but not limited to mulching, plastic sheeting or hydroseeding, notes have been added to the plan regarding protection for the stock pile area if necessary.

6: Protect Slopes

No slopes are expected on this site; however, any stockpile area will be protected as noted above.

7: Protect Drain Inlets

All existing & proposed catch basins and area drains will have inlet filters installed to protect the conveyance system.

8: Stabilize Channels and Outlets

Check dams will be used in any existing/proposed ditch on-site or adjacent to the site. Also, interceptor swales with check dams. These features will protect the existing and proposed channels from erosion.

9: Control Pollutants

No outside chemicals are expected to be necessary for the construction of this project. All vehicles working on and around the site would need to meet the State requirements for emissions.

10: Control DeWatering

Dewatering runoff will be infiltrated on-site. The contractor shall monitor the temporary system to ensure no erosion or excessive sedimentation occurs in the disposal areas.

11: Maintain BMPs

The construction supervisor will be responsible for maintaining all BMPs during construction and working with the City to relocate or add BMPs as necessary as site conditions change.

12: Manage the Project

It will be the responsibility of the Contractor and Developer to manage this project and coordinate with the City Inspector and Engineer.

Inspection and Monitoring:

Site inspections shall be done by a person who is knowledgeable in the principles and practices of erosion and sediment control. The person must have skills to first assess the site conditions and construction activities that could impact the quality of stormwater, and second assess the effectiveness of erosion and sediment control measures used to control the quality of stormwater discharges.

Whenever inspection and/or monitoring reveals that the BMPs identified in the Construction SWPPP are inadequate, due to the actual discharge of or potential to discharge a significant amount of any pollutant, appropriate BMPs or design changes shall be implemented as soon as possible.

Maintaining an Updated Construction SWPPP:

The construction SWPPP shall be retained on-site or within reasonable access to the site.

The SWPPP shall be modified whenever there is a change in the design, construction, operation, or maintenance at the construction site that has, or could have, a significant effect on the discharge of pollutants to waters of the state.

The SWPPP shall be modified if, during inspections or investigations conducted by the owner/operator, or the applicable local or state regulatory authority, it is determined that the SWPPP is ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the site. The SWPPP shall be modified as necessary to include additional or modified BMPs designed to correct problems identified. Revisions to the SWPPP shall be completed within seven days following inspection.

MINIMUM REQUIREMENT #3: SOURCE CONTROL OF POLLUTANTS

The improvements proposed on this site will create 5 buildings with 18 units and new private access, parking and driveways. Office buildings and Residential townhomes do not require additional source control BMPS, but basic water quality is proposed on this site.

MINIMUM REQUIREMENT #4: PRESERVATION OF NATURAL DRAINAGE SYSTEMS AND OUTFALLS

The runoff generated from the finished project will be fully infiltrated up to the 100-year storm event.

MINIMUM REQUIREMENT #5: ON-SITE STORMWATER MANAGEMENT

Runoff from the new private access, parking lot, roofs and landscaping will be collected in CBs or yard drains and conveyed to different infiltration trenches spread around the site.

MINIMUM REQUIREMENT #6: RUNOFF TREATMENT

A soil treatment layer will be provided in the bottom of all infiltration trenches receiving runoff from PGHS. This design meets the basic water quality treatment requirement for residential projects.

MINIMUM REQUIREMENT #7: FLOW CONTROL

The design and analysis for this project requires the construction of an infiltration system which was sized using the WWHM2012 software.

MINIMUM REQUIREMENT #8: WETLAND PROTECTION

Full infiltration will recharge the groundwater and protect downstream critical areas.

MINIMUM REQUIREMENT #9: BASIN/WATERSHED PLANNING

The scope of this project is too small to justify a Watershed Plan.

MINIMUM REQUIREMENT #10: OPERATION AND MAINTENANCE

A complete O&M manual will be provided with the full drainage report.

5. DESCRIPTION OF PROPOSED EROSION CONTROL BMP'S

Clearing, grading, and temporary erosion and sediment control plans have been prepared for this project. However, since a construction site is dynamic it will be necessary to re-assess the erosion control BMP's during construction and install additional measures when and if necessary.

Proposed temporary measures for this project will include the following BMP's:

- Installation of stabilized rock construction entrance(s).
- Interceptor swales
- Rip-Rap check dams
- Straw mulch, hydroseed or other mulching and planting method to stabilize unworked areas.
- Silt Fencing

Permanent measures to reduce or eliminate erosion or water quality degradation will include the following BMP's: (Under Future Phase/Permit)

- Paving all traffic areas
- Drainage collection system, including catch basins and floatable material separators
- Permanent landscaping in pervious areas.
- Limiting cut and fill slopes to 2:1 maximum
- Routine maintenance and inspection of the grounds and response to developing problems.

These proposed erosion control BMP's have been engineered for anticipated conditions in compliance with DOE guidelines. With proper installation, maintenance and inspection the proposed BMP's should result in minimal impact to the surrounding environment. The City retains the authority by code to require additional measures should the existing measures prove insufficient.

A. SITE GRADING/EROSION CONTROL RISK ASSESSMENT

SLOPE: Existing grades onsite slope down from north to south to northwest to southeast ranging from 0% to approximately 3.0%. The proposed internal access grades will be no greater than 2%.

CRITICAL AREAS: None on or adjacent to the site.

SOILS: In the development area of the site soils are hydrologic group C but underlain with group A/B, (from Geotechnical Report).

GROUND MOVEMENT POTENTIAL: N/A

SOURCES OF WATER FOR EROSION: Rainfall will be the only significant source of onsite runoff.

MEASURES PROPOSED TO PREVENT/MINIMIZE EROSION:

TEMPORARY MEASURES: Mulch cover, rock construction entrance(s), diversion swales, silt fencing are all proposed to be used to prevent or minimize erosion and siltation during construction.

PERMANENT MEASURES: Future measures will include permanent vegetative cover in pervious areas, limiting permanent cut and fill slopes to 2:1 maximum unless protected with a rocky face, asphalt pavement to stabilize all vehicle traffic areas and a piped conveyance system to control the location of runoff release. Routine maintenance of the grounds and response to developing problems will be a function of the property owner.

CONCLUSION: Proposed erosion control BMP's in compliance with DOE guidelines have been engineered for anticipated conditions. Civil construction plans include a detailed ESC plan that provides details and notes for the proposed BMP's. With proper installation, maintenance and inspection, the proposed BMP's should result in minimal impact to the surrounding environment. Based on the above information the Erosion Risk for this site is Low to Moderate. Reports, studies and designs for this site include:

SEPA Checklist, by Others

Preliminary Engineering Construction Plans, by Omega Engineering, Inc.

Geotechnical Report, by Liu & Associates, Inc.

B. Minimum Elements

1: Mark Clearing Limits

One of the first steps in the "Construction Sequence" included on the clearing and grading plan sheets is for a surveyor to stake the limits of clearing and to have construction or silt fencing placed along the limits prior to any other construction activity.

2: Establish Construction Access

The SWPPP calls for the proposed construction entrance to be installed as the second step after the staking of clearing limits. A detail is provided on the plans.

3: Control Flow Rates

This project will construct an interceptor swale system to capture site runoff and allow the water to infiltrate on-site in areas not proposed for future/permanent infiltration systems.

4: Install Sediment Controls

This site and SWPPP proposes to construct a construction entrance to collect and contain the sediment on this site. In addition, inlet filters will be installed in the existing catch basins adjacent to the site, and check dams will be installed in the on-site interceptor swales. The proposed on-site CBs will be installed with inlet filters but the outlet pipes connecting to infiltration trenches will be plugged until the site has been stabilized and the conveyance system flushed and cleaned. These features are intended to minimize the opportunity for sediment to leave the site via stormwater or on vehicles. The construction of these features is one of the first items required in the "Construction Sequence".

5: Stabilize Soils

The "Construction Sequence" and "TESC Notes" call for the stabilization of soils that remain unworked for certain lengths of time based on the time of year. Stabilization techniques may include but not limited to mulching, plastic sheeting or hydroseeding, notes have been added to the plan regarding protection for the stock pile area if necessary.

6: Protect Slopes

No slopes are expected on this site; however, any stockpile area will be protected as noted above.

7: Protect Drain Inlets

All existing & proposed catch basins and area drains will have inlet filters installed to protect the conveyance system.

8: Stabilize Channels and Outlets

Check dams will be used in any existing/proposed ditch on-site or adjacent to the site. Also, interceptor swales with check dams. These features will protect the existing and proposed channels from erosion.

9: Control Pollutants

No outside chemicals are expected to be necessary for the construction of this project. All vehicles working on and around the site would need to meet the State requirements for emissions.

10: Control DeWatering

Dewatering runoff will be infiltrated on-site. The contractor shall monitor the temporary system to ensure no erosion or excessive sedimentation occurs in the disposal areas.

11: Maintain BMPs

The construction supervisor will be responsible for maintaining all BMPs during construction and working with the City to relocate or add BMPs as necessary as site conditions change.

12: Manage the Project

It will be the responsibility of the Contractor and Developer to manage this project and coordinate with the City Inspector and Engineer.

Inspection and Monitoring:

Site inspections shall be done by a person who is knowledgeable in the principles and practices of erosion and sediment control. The person must have skills to first assess the site conditions and construction activities that could impact the quality of stormwater, and second assess the effectiveness of erosion and sediment control measures used to control the quality of stormwater discharges.

Whenever inspection and/or monitoring reveals that the BMPs identified in the Construction SWPPP are inadequate, due to the actual discharge of or potential to discharge a significant amount of any pollutant, appropriate BMPs or design changes shall be implemented as soon as possible.

Maintaining an Updated Construction SWPPP:

The construction SWPPP shall be retained on-site or within reasonable access to the site.

The SWPPP shall be modified whenever there is a change in the design, construction, operation, or maintenance at the construction site that has, or could have, a significant effect on the discharge of pollutants to waters of the state.

The SWPPP shall be modified if, during inspections or investigations conducted by the owner/operator, or the applicable local or state regulatory authority, it is determined that the SWPPP is ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the site. The SWPPP shall be modified as necessary to include additional or modified BMPs designed to correct problems identified. Revisions to the SWPPP shall be completed within seven days following inspection.

6. OFFSITE DRAINAGE ANALYSIS - UPSTREAM

From field observation and review of the available topography, it appears that some small areas to the south of this project will drain onto the site but this is limited to only the private access. These flows are negligible in the existing condition and will be collected on-site and infiltrated with the other areas in the developed condition.

7. OFFSITE DRAINAGE ANALYSIS - DOWNSTREAM

The project is bordered to the north, south, east and west by developed properties. Since the proposed project will account for the upstream offsite flows this project will fully infiltrate all runoff generated on-site and tributary to the site.

8. DETENTION STORAGE CALCULATIONS

Current City code requires this site be analyzed using the 2012 DOE manual. The WWHM2012 has been selected to size the appropriate drainage mitigation system for this project. The 2012 drainage manual calls for the use of an approved continuous runoff hydrology model and the WWHM2012 stormwater software meets this requirement.

Since this site proposes using multiple infiltration systems to fully infiltrate the runoff from the developed site infiltration trenches have been sized to accommodate the developed conditions for this project up to the 100-year condition.

The proposed infiltration trenches are located within the proposed R.O.W. and under the parking area on Lot 19. The road and parking runoff will be directed to catch basins connected to the infiltration trenches. All runoff from the future lots will be collected by yard drains and directed to the infiltration trenches, along with future roof runoff.

Refer to appendix 'A' for the full output from the WWHM2012 software.

9. WATER QUALITY DESIGN

Water quality for this project will be provided in the form of a soil treatment layer in the bottom of any infiltration trench receiving runoff from PGHS. This meets the basic water quality requirements.

The Geotechnical engineer has provided recommendations for the treatment layer of soil if needed. The design will include a 1.0-foot layer of material beneath the bottom of the trench section which provides a minimum organic content of 5% and a cation exchange capacity (CEC) of 5 milliequivalents/100 grams. Some amendment of the existing soils may be necessary to provide the full thickness for the treatment layer. The project Geotech will be required to be on-site while the trenches are being excavated and prior to backfill to ensure the soils meet the treatment requirements.

10. CONVEYANCE CALCULATIONS

All of the proposed pipes designed for this project will receive much less than 2.5 cfs peak flows from the 100-year storm event. These pipes are designed as 12" pipes (S=0.5%, min.) with a peak flowing full capacity of over 2.7 cfs and therefore more than adequate capacity to handle the expected flows.

Therefore, all pipes designed for this project have more capacity than required based on the expected flow to each leg of the pipe system.

11. OPERATIONS AND MAINTENANCE MANUAL

The Property Owners and HOA will be responsible for maintaining the stormwater and landscaping facilities within this development. Included in this manual are checklists for each feature specific to this project. Copies should be made of the checklists as necessary during routine inspections and required maintenance. Specific problems can be recorded along with the appropriate action taken.

These checklists are a guide for inspections and maintenance. The frequency of the inspections/maintenance is identified in the left hand column with the following abbreviations:

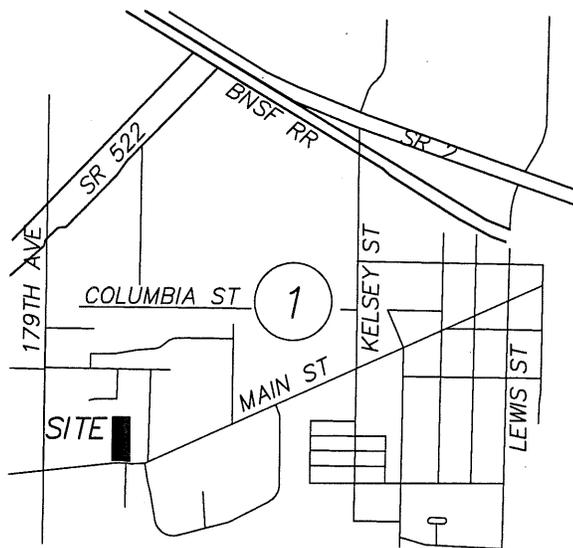
A = Annual (March or April preferred)

M = Monthly

S = After Major Storms (Use 1-inch in 24 hours as a guideline)

Routine inspections and maintenance will improve the long-term performance of the stormwater facilities. If at any time you are unsure if a problem exists or how to address a specific problem, contact a Professional Engineer.

Refer to Appendix B for a list of each facility to be maintained and the appropriate maintenance checklist.



VICINITY MAP

SCALE: 1" = 2,000'



FIG. 1



OMEGA
ENGINEERING, INC.

2707 WETMORE AVE.
Everett, WA 98201
(o)425.387.3820 (f) 425.259.1958

VICINITY MAP
MAIN BROOK TOWNHOMES

DATE	JOB NO.	SCALE	SHEET
2/19/18	17-0807	1" = 2000'	1 OF 1

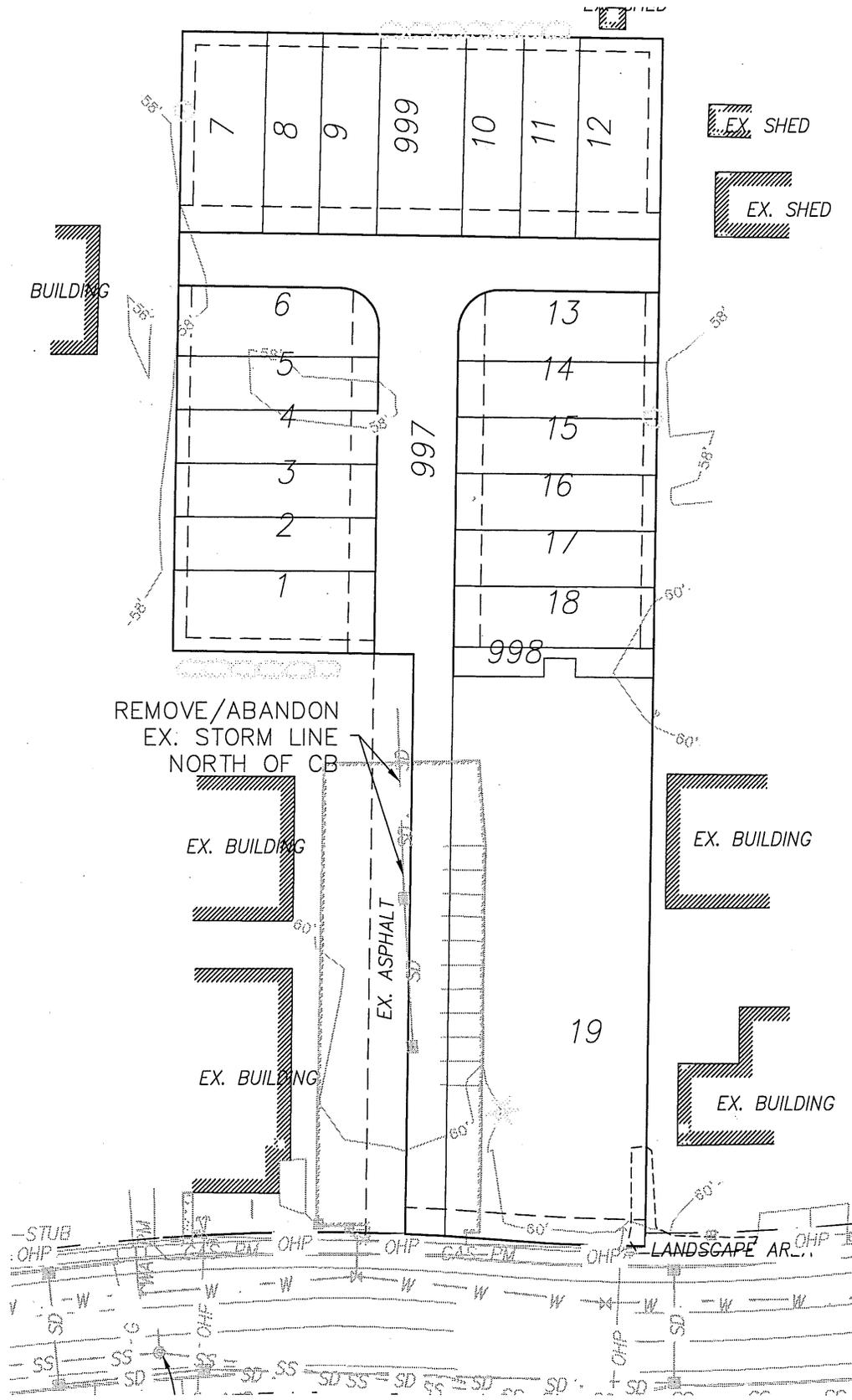


FIG. 2



OMEGA ENGINEERING, INC.
 2707 WETMORE AVE.
 Everett, WA 98201
 (o)425.387.3820 (f) 425.259.1958

EXISTING BASIN MAP
 MAIN BROOK TOWNHOMES

DATE	JOB NO.	SCALE	SHEET
2/19/18	17-0807	1" = 60'	1 OF 1

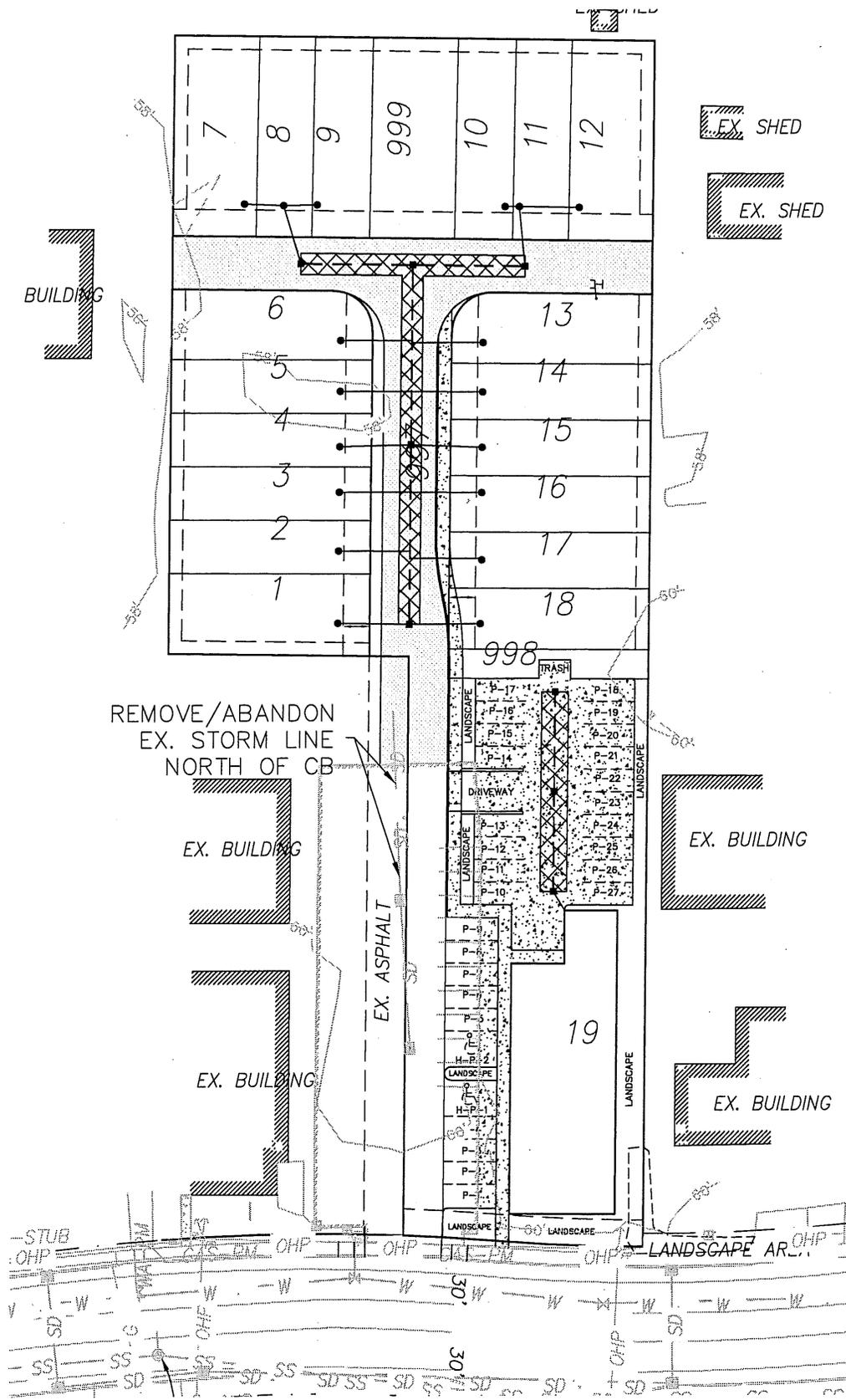


FIG. 3

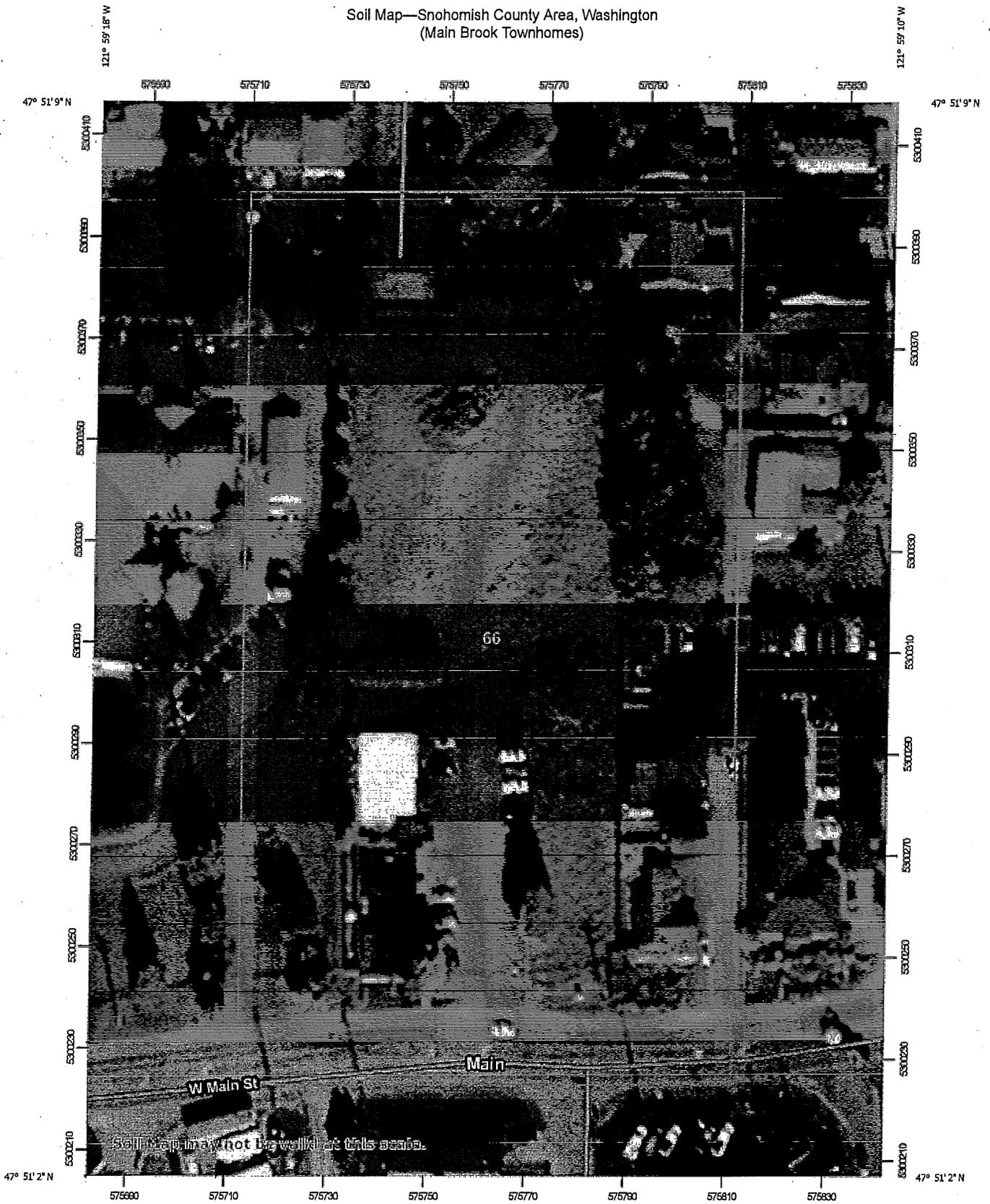


OMEGA ENGINEERING, INC.
 2707 WETMORE AVE.
 Everett, WA 98201
 (o)425.387.3820 (f) 425.259.1958

DEVELOPED BASIN MAP
 MAIN BROOK TOWNHOMES

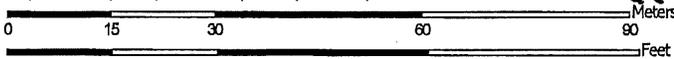
DATE	JOB NO.	SCALE	SHEET
2/19/18	17-0807	1" = 60'	1 OF 1

Soil Map—Snohomish County Area, Washington
(Main Brook Townhomes)



Soil Map may not be valid at this scale.

Map Scale: 1:1,030 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

*(66) Sultan Silt
Loam*

Fig. 4



APPENDIX A
STORMWATER CALCULATIONS

WWHM2012
PROJECT REPORT

General Model Information

Project Name: 17-0807 - infil
Site Name: MAINBROOK
Site Address: MAIN STREET
City: MONROE
Report Date: 9/14/2017
Gage: Everett
Data Start: 1948/10/01
Data End: 2009/09/30
Timestep: 15 Minute
Precip Scale: 1.20
Version Date: 2016/02/25
Version: 4.2.12

POC Thresholds

Low Flow Threshold for POC1: 50 Percent of the 2 Year
High Flow Threshold for POC1: 50 Year

Landuse Basin Data
Predeveloped Land Use

Basin 1

Bypass: No

GroundWater: No

Pervious Land Use acre
A B, Forest, Flat 1.38

Pervious Total 1.38

Impervious Land Use acre

Impervious Total 0

Basin Total 1.38

Element Flows To:
Surface

Interflow

Groundwater

Mitigated Land Use

LOTS 19-21

Bypass: No

GroundWater: No

Pervious Land Use acre
A B, Lawn, Flat 0.09

Pervious Total 0.09

Impervious Land Use acre
ROOF TOPS FLAT 0.1
PARKING FLAT 0.2

Impervious Total 0.3

Basin Total 0.39

Element Flows To:

Surface	Interflow	Groundwater
Gravel Trench Bed 1	Gravel Trench Bed 1	

LOTS 1-19, TRACT 997

Bypass: No

GroundWater: No

Pervious Land Use acre
A B, Lawn, Flat 0.26

Pervious Total 0.26

Impervious Land Use acre
ROADS FLAT 0.17
ROOF TOPS FLAT 0.37
DRIVEWAYS FLAT 0.17
SIDEWALKS FLAT 0.02

Impervious Total 0.73

Basin Total 0.99

Element Flows To:

Surface	Interflow	Groundwater
Gravel Trench Bed 2	Gravel Trench Bed 2	

Routing Elements
Predeveloped Routing

Mitigated Routing

Gravel Trench Bed 1

Bottom Length: 75.00 ft.
 Bottom Width: 10.00 ft.
 Trench bottom slope 1: 0 To 1
 Trench Left side slope 0: 0 To 1
 Trench right side slope 2: 0 To 1
 Material thickness of first layer: 4
 Pour Space of material for first layer: 0.35
 Material thickness of second layer: 0
 Pour Space of material for second layer: 0
 Material thickness of third layer: 0
 Pour Space of material for third layer: 0
 Infiltration On
 Infiltration rate: 4
 Infiltration safety factor: 1
 Total Volume Infiltrated (ac-ft.): 58.067
 Total Volume Through Riser (ac-ft.): 0.001
 Total Volume Through Facility (ac-ft.): 58.068
 Percent Infiltrated: 100
 Total Precip Applied to Facility: 0
 Total Evap From Facility: 0
 Discharge Structure
 Riser Height: 4 ft.
 Riser Diameter: 8 in.
 Element Flows To:
 Outlet 1 Outlet 2
 Channel 1

Gravel Trench Bed Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.017	0.000	0.000	0.000
0.0556	0.017	0.000	0.000	0.069
0.1111	0.017	0.000	0.000	0.069
0.1667	0.017	0.001	0.000	0.069
0.2222	0.017	0.001	0.000	0.069
0.2778	0.017	0.001	0.000	0.069
0.3333	0.017	0.002	0.000	0.069
0.3889	0.017	0.002	0.000	0.069
0.4444	0.017	0.002	0.000	0.069
0.5000	0.017	0.003	0.000	0.069
0.5556	0.017	0.003	0.000	0.069
0.6111	0.017	0.003	0.000	0.069
0.6667	0.017	0.004	0.000	0.069
0.7222	0.017	0.004	0.000	0.069
0.7778	0.017	0.004	0.000	0.069
0.8333	0.017	0.005	0.000	0.069
0.8889	0.017	0.005	0.000	0.069
0.9444	0.017	0.005	0.000	0.069
1.0000	0.017	0.006	0.000	0.069
1.0556	0.017	0.006	0.000	0.069
1.1111	0.017	0.006	0.000	0.069
1.1667	0.017	0.007	0.000	0.069
1.2222	0.017	0.007	0.000	0.069
1.2778	0.017	0.007	0.000	0.069

1.3333	0.017	0.008	0.000	0.069
1.3889	0.017	0.008	0.000	0.069
1.4444	0.017	0.008	0.000	0.069
1.5000	0.017	0.009	0.000	0.069
1.5556	0.017	0.009	0.000	0.069
1.6111	0.017	0.009	0.000	0.069
1.6667	0.017	0.010	0.000	0.069
1.7222	0.017	0.010	0.000	0.069
1.7778	0.017	0.010	0.000	0.069
1.8333	0.017	0.011	0.000	0.069
1.8889	0.017	0.011	0.000	0.069
1.9444	0.017	0.011	0.000	0.069
2.0000	0.017	0.012	0.000	0.069
2.0556	0.017	0.012	0.000	0.069
2.1111	0.017	0.012	0.000	0.069
2.1667	0.017	0.013	0.000	0.069
2.2222	0.017	0.013	0.000	0.069
2.2778	0.017	0.013	0.000	0.069
2.3333	0.017	0.014	0.000	0.069
2.3889	0.017	0.014	0.000	0.069
2.4444	0.017	0.014	0.000	0.069
2.5000	0.017	0.015	0.000	0.069
2.5556	0.017	0.015	0.000	0.069
2.6111	0.017	0.015	0.000	0.069
2.6667	0.017	0.016	0.000	0.069
2.7222	0.017	0.016	0.000	0.069
2.7778	0.017	0.016	0.000	0.069
2.8333	0.017	0.017	0.000	0.069
2.8889	0.017	0.017	0.000	0.069
2.9444	0.017	0.017	0.000	0.069
3.0000	0.017	0.018	0.000	0.069
3.0556	0.017	0.018	0.000	0.069
3.1111	0.017	0.018	0.000	0.069
3.1667	0.017	0.019	0.000	0.069
3.2222	0.017	0.019	0.000	0.069
3.2778	0.017	0.019	0.000	0.069
3.3333	0.017	0.020	0.000	0.069
3.3889	0.017	0.020	0.000	0.069
3.4444	0.017	0.020	0.000	0.069
3.5000	0.017	0.021	0.000	0.069
3.5556	0.017	0.021	0.000	0.069
3.6111	0.017	0.021	0.000	0.069
3.6667	0.017	0.022	0.000	0.069
3.7222	0.017	0.022	0.000	0.069
3.7778	0.017	0.022	0.000	0.069
3.8333	0.017	0.023	0.000	0.069
3.8889	0.017	0.023	0.000	0.069
3.9444	0.017	0.023	0.000	0.069
4.0000	0.017	0.024	0.000	0.069
4.0556	0.017	0.025	0.092	0.069
4.1111	0.017	0.026	0.255	0.069
4.1667	0.017	0.027	0.441	0.069
4.2222	0.017	0.027	0.610	0.069
4.2778	0.017	0.028	0.730	0.069
4.3333	0.017	0.029	0.799	0.069
4.3889	0.017	0.030	0.873	0.069
4.4444	0.017	0.031	0.933	0.069
4.5000	0.017	0.032	0.989	0.069

4.5556	0.017	0.033	1.043	0.069
4.6111	0.017	0.034	1.094	0.069
4.6667	0.017	0.035	1.143	0.069
4.7222	0.017	0.036	1.189	0.069
4.7778	0.017	0.037	1.234	0.069
4.8333	0.017	0.038	1.277	0.069
4.8889	0.017	0.039	1.319	0.069
4.9444	0.017	0.040	1.360	0.069
5.0000	0.017	0.041	1.399	0.069

Gravel Trench Bed 2

Bottom Length: 220.00 ft.
 Bottom Width: 8.00 ft.
 Trench bottom slope 1: 0 To 1
 Trench Left side slope 0: 0 To 1
 Trench right side slope 2: 0 To 1
 Material thickness of first layer: 4
 Pour Space of material for first layer: 0.35
 Material thickness of second layer: 0
 Pour Space of material for second layer: 0
 Material thickness of third layer: 0
 Pour Space of material for third layer: 0
 Infiltration On
 Infiltration rate: 4
 Infiltration safety factor: 1
 Total Volume Infiltrated (ac-ft.): 141.532
 Total Volume Through Riser (ac-ft.): 0.005
 Total Volume Through Facility (ac-ft.): 141.537
 Percent Infiltrated: 100
 Total Precip Applied to Facility: 0
 Total Evap From Facility: 0
 Discharge Structure
 Riser Height: 4 ft.
 Riser Diameter: 8 in.
 Element Flows To:
 Outlet 1 Outlet 2
 Channel 1

Gravel Trench Bed Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.040	0.000	0.000	0.000
0.0556	0.040	0.000	0.000	0.163
0.1111	0.040	0.001	0.000	0.163
0.1667	0.040	0.002	0.000	0.163
0.2222	0.040	0.003	0.000	0.163
0.2778	0.040	0.003	0.000	0.163
0.3333	0.040	0.004	0.000	0.163
0.3889	0.040	0.005	0.000	0.163
0.4444	0.040	0.006	0.000	0.163
0.5000	0.040	0.007	0.000	0.163
0.5556	0.040	0.007	0.000	0.163
0.6111	0.040	0.008	0.000	0.163
0.6667	0.040	0.009	0.000	0.163
0.7222	0.040	0.010	0.000	0.163
0.7778	0.040	0.011	0.000	0.163
0.8333	0.040	0.011	0.000	0.163
0.8889	0.040	0.012	0.000	0.163
0.9444	0.040	0.013	0.000	0.163
1.0000	0.040	0.014	0.000	0.163
1.0556	0.040	0.014	0.000	0.163
1.1111	0.040	0.015	0.000	0.163
1.1667	0.040	0.016	0.000	0.163
1.2222	0.040	0.017	0.000	0.163
1.2778	0.040	0.018	0.000	0.163
1.3333	0.040	0.018	0.000	0.163
1.3889	0.040	0.019	0.000	0.163

1.4444	0.040	0.020	0.000	0.163
1.5000	0.040	0.021	0.000	0.163
1.5556	0.040	0.022	0.000	0.163
1.6111	0.040	0.022	0.000	0.163
1.6667	0.040	0.023	0.000	0.163
1.7222	0.040	0.024	0.000	0.163
1.7778	0.040	0.025	0.000	0.163
1.8333	0.040	0.025	0.000	0.163
1.8889	0.040	0.026	0.000	0.163
1.9444	0.040	0.027	0.000	0.163
2.0000	0.040	0.028	0.000	0.163
2.0556	0.040	0.029	0.000	0.163
2.1111	0.040	0.029	0.000	0.163
2.1667	0.040	0.030	0.000	0.163
2.2222	0.040	0.031	0.000	0.163
2.2778	0.040	0.032	0.000	0.163
2.3333	0.040	0.033	0.000	0.163
2.3889	0.040	0.033	0.000	0.163
2.4444	0.040	0.034	0.000	0.163
2.5000	0.040	0.035	0.000	0.163
2.5556	0.040	0.036	0.000	0.163
2.6111	0.040	0.036	0.000	0.163
2.6667	0.040	0.037	0.000	0.163
2.7222	0.040	0.038	0.000	0.163
2.7778	0.040	0.039	0.000	0.163
2.8333	0.040	0.040	0.000	0.163
2.8889	0.040	0.040	0.000	0.163
2.9444	0.040	0.041	0.000	0.163
3.0000	0.040	0.042	0.000	0.163
3.0556	0.040	0.043	0.000	0.163
3.1111	0.040	0.044	0.000	0.163
3.1667	0.040	0.044	0.000	0.163
3.2222	0.040	0.045	0.000	0.163
3.2778	0.040	0.046	0.000	0.163
3.3333	0.040	0.047	0.000	0.163
3.3889	0.040	0.047	0.000	0.163
3.4444	0.040	0.048	0.000	0.163
3.5000	0.040	0.049	0.000	0.163
3.5556	0.040	0.050	0.000	0.163
3.6111	0.040	0.051	0.000	0.163
3.6667	0.040	0.051	0.000	0.163
3.7222	0.040	0.052	0.000	0.163
3.7778	0.040	0.053	0.000	0.163
3.8333	0.040	0.054	0.000	0.163
3.8889	0.040	0.055	0.000	0.163
3.9444	0.040	0.055	0.000	0.163
4.0000	0.040	0.056	0.000	0.163
4.0556	0.040	0.058	0.092	0.163
4.1111	0.040	0.061	0.255	0.163
4.1667	0.040	0.063	0.441	0.163
4.2222	0.040	0.065	0.610	0.163
4.2778	0.040	0.067	0.730	0.163
4.3333	0.040	0.070	0.799	0.163
4.3889	0.040	0.072	0.873	0.163
4.4444	0.040	0.074	0.933	0.163
4.5000	0.040	0.076	0.989	0.163
4.5556	0.040	0.079	1.043	0.163
4.6111	0.040	0.081	1.094	0.163

4.6667	0.040	0.083	1.143	0.163
4.7222	0.040	0.085	1.189	0.163
4.7778	0.040	0.088	1.234	0.163
4.8333	0.040	0.090	1.277	0.163
4.8889	0.040	0.092	1.319	0.163
4.9444	0.040	0.094	1.360	0.163
5.0000	0.040	0.097	1.399	0.163

Channel 1

Bottom Length: 100.00 ft.
 Bottom Width: 10.00 ft.
 Manning's n: 0.03
 Channel bottom slope 1: 1 To 1
 Channel Left side slope 0: 0.1 To 1
 Channel right side slope 2: 0.1 To 1
 Discharge Structure
 Riser Height: 0 ft.
 Riser Diameter: 0 in.
 Element Flows To:
 Outlet 1 Outlet 2

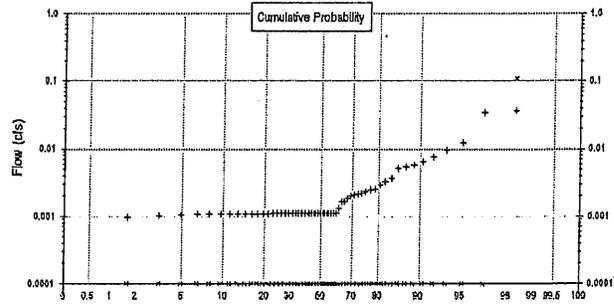
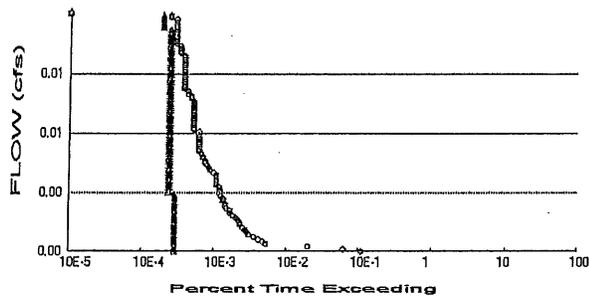
Channel Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.023	0.000	0.000	0.000
0.0222	0.023	0.000	0.870	0.000
0.0444	0.023	0.001	2.755	0.000
0.0667	0.023	0.001	5.401	0.000
0.0889	0.023	0.002	8.702	0.000
0.1111	0.023	0.002	12.59	0.000
0.1333	0.023	0.003	17.01	0.000
0.1556	0.023	0.003	21.94	0.000
0.1778	0.023	0.004	27.35	0.000
0.2000	0.023	0.004	33.20	0.000
0.2222	0.023	0.005	39.47	0.000
0.2444	0.023	0.005	46.15	0.000
0.2667	0.023	0.006	53.23	0.000
0.2889	0.023	0.006	60.67	0.000
0.3111	0.023	0.007	68.48	0.000
0.3333	0.023	0.007	76.64	0.000
0.3556	0.023	0.008	85.14	0.000
0.3778	0.023	0.008	93.97	0.000
0.4000	0.023	0.009	103.1	0.000
0.4222	0.023	0.009	112.5	0.000
0.4444	0.023	0.010	122.3	0.000
0.4667	0.023	0.010	132.3	0.000
0.4889	0.023	0.011	142.7	0.000
0.5111	0.023	0.011	153.3	0.000
0.5333	0.023	0.012	164.2	0.000
0.5556	0.023	0.012	175.3	0.000
0.5778	0.023	0.013	186.7	0.000
0.6000	0.023	0.013	198.4	0.000
0.6222	0.023	0.014	210.3	0.000
0.6444	0.023	0.015	222.5	0.000
0.6667	0.023	0.015	234.9	0.000
0.6889	0.023	0.016	247.5	0.000
0.7111	0.023	0.016	260.4	0.000
0.7333	0.023	0.017	273.5	0.000
0.7556	0.023	0.017	286.8	0.000
0.7778	0.023	0.018	300.4	0.000
0.8000	0.023	0.018	314.1	0.000
0.8222	0.023	0.019	328.1	0.000
0.8444	0.023	0.019	342.2	0.000
0.8667	0.023	0.020	356.6	0.000

0.8889	0.023	0.020	371.2	0.000
0.9111	0.023	0.021	385.9	0.000
0.9333	0.023	0.021	400.9	0.000
0.9556	0.023	0.022	416.0	0.000
0.9778	0.023	0.022	431.4	0.000
1.0000	0.023	0.023	446.9	0.000
1.0222	0.023	0.024	462.6	0.000
1.0444	0.023	0.024	478.5	0.000
1.0667	0.023	0.025	494.5	0.000
1.0889	0.024	0.025	510.7	0.000
1.1111	0.024	0.026	527.1	0.000
1.1333	0.024	0.026	543.7	0.000
1.1556	0.024	0.027	560.4	0.000
1.1778	0.024	0.027	577.3	0.000
1.2000	0.024	0.028	594.4	0.000
1.2222	0.024	0.028	611.6	0.000
1.2444	0.024	0.029	629.0	0.000
1.2667	0.024	0.029	646.5	0.000
1.2889	0.024	0.030	664.2	0.000
1.3111	0.024	0.030	682.0	0.000
1.3333	0.024	0.031	700.0	0.000
1.3556	0.024	0.032	718.2	0.000
1.3778	0.024	0.032	736.4	0.000
1.4000	0.024	0.033	754.8	0.000
1.4222	0.024	0.033	773.4	0.000
1.4444	0.024	0.034	792.1	0.000
1.4667	0.024	0.034	811.0	0.000
1.4889	0.024	0.035	829.9	0.000
1.5111	0.024	0.035	849.1	0.000
1.5333	0.024	0.036	868.3	0.000
1.5556	0.024	0.036	887.7	0.000
1.5778	0.024	0.037	907.2	0.000
1.6000	0.024	0.037	926.8	0.000
1.6222	0.024	0.038	946.6	0.000
1.6444	0.024	0.039	966.5	0.000
1.6667	0.024	0.039	986.5	0.000
1.6889	0.024	0.040	1006.	0.000
1.7111	0.024	0.040	1026.	0.000
1.7333	0.024	0.041	1047.	0.000
1.7556	0.024	0.041	1067.	0.000
1.7778	0.024	0.042	1088.	0.000
1.8000	0.024	0.042	1109.	0.000
1.8222	0.024	0.043	1130.	0.000
1.8444	0.024	0.043	1151.	0.000
1.8667	0.024	0.044	1172.	0.000
1.8889	0.024	0.045	1193.	0.000
1.9111	0.024	0.045	1214.	0.000
1.9333	0.024	0.046	1236.	0.000
1.9556	0.024	0.046	1257.	0.000
1.9778	0.024	0.047	1279.	0.000
2.0000	0.024	0.047	1301.	0.000
2.0222	0.024	0.048	1322.	0.000

Analysis Results

POC 1



+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1

Total Pervious Area: 1.38
Total Impervious Area: 0

Mitigated Landuse Totals for POC #1

Total Pervious Area: 0.35
Total Impervious Area: 1.03

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	0.001584
5 year	0.003435
10 year	0.005511
25 year	0.009625
50 year	0.014222
100 year	0.02063

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	0
5 year	0
10 year	0
25 year	0
50 year	0
100 year	0

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #1

Year	Predeveloped	Mitigated
1949	0.001	0.000
1950	0.003	0.000
1951	0.002	0.000
1952	0.001	0.000
1953	0.001	0.000
1954	0.008	0.000
1955	0.006	0.000
1956	0.001	0.000
1957	0.001	0.000
1958	0.001	0.000

1959	0.002	0.000
1960	0.002	0.000
1961	0.005	0.112
1962	0.001	0.000
1963	0.001	0.000
1964	0.004	0.000
1965	0.001	0.000
1966	0.001	0.000
1967	0.002	0.000
1968	0.001	0.000
1969	0.001	0.000
1970	0.001	0.000
1971	0.005	0.000
1972	0.001	0.000
1973	0.001	0.000
1974	0.003	0.000
1975	0.001	0.000
1976	0.003	0.000
1977	0.001	0.000
1978	0.001	0.000
1979	0.002	0.000
1980	0.001	0.000
1981	0.001	0.000
1982	0.002	0.000
1983	0.001	0.000
1984	0.001	0.000
1985	0.002	0.000
1986	0.010	0.000
1987	0.006	0.000
1988	0.001	0.000
1989	0.001	0.000
1990	0.001	0.000
1991	0.001	0.000
1992	0.001	0.000
1993	0.001	0.000
1994	0.001	0.000
1995	0.001	0.000
1996	0.012	0.000
1997	0.034	0.000
1998	0.001	0.000
1999	0.001	0.000
2000	0.002	0.000
2001	0.001	0.000
2002	0.001	0.000
2003	0.001	0.000
2004	0.001	0.000
2005	0.001	0.000
2006	0.037	0.000
2007	0.001	0.000
2008	0.002	0.000
2009	0.001	0.000

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	0.0367	0.1116
2	0.0342	0.0000
3	0.0125	0.0000

4	0.0097	0.0000
5	0.0076	0.0000
6	0.0064	0.0000
7	0.0058	0.0000
8	0.0054	0.0000
9	0.0052	0.0000
10	0.0036	0.0000
11	0.0032	0.0000
12	0.0029	0.0000
13	0.0025	0.0000
14	0.0025	0.0000
15	0.0023	0.0000
16	0.0022	0.0000
17	0.0022	0.0000
18	0.0021	0.0000
19	0.0020	0.0000
20	0.0019	0.0000
21	0.0017	0.0000
22	0.0016	0.0000
23	0.0013	0.0000
24	0.0011	0.0000
25	0.0011	0.0000
26	0.0011	0.0000
27	0.0011	0.0000
28	0.0011	0.0000
29	0.0011	0.0000
30	0.0011	0.0000
31	0.0011	0.0000
32	0.0011	0.0000
33	0.0011	0.0000
34	0.0011	0.0000
35	0.0011	0.0000
36	0.0011	0.0000
37	0.0011	0.0000
38	0.0011	0.0000
39	0.0011	0.0000
40	0.0011	0.0000
41	0.0011	0.0000
42	0.0011	0.0000
43	0.0011	0.0000
44	0.0011	0.0000
45	0.0011	0.0000
46	0.0011	0.0000
47	0.0011	0.0000
48	0.0011	0.0000
49	0.0011	0.0000
50	0.0011	0.0000
51	0.0011	0.0000
52	0.0011	0.0000
53	0.0011	0.0000
54	0.0011	0.0000
55	0.0011	0.0000
56	0.0011	0.0000
57	0.0011	0.0000
58	0.0011	0.0000
59	0.0010	0.0000
60	0.0010	0.0000
61	0.0008	0.0000

Duration Flows
The Facility PASSED

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.0008	2355	6	0	Pass
0.0009	1329	6	0	Pass
0.0011	434	6	1	Pass
0.0012	112	6	5	Pass
0.0013	103	6	5	Pass
0.0015	89	6	6	Pass
0.0016	77	6	7	Pass
0.0017	66	6	9	Pass
0.0019	61	6	9	Pass
0.0020	58	6	10	Pass
0.0021	54	6	11	Pass
0.0023	50	6	12	Pass
0.0024	49	6	12	Pass
0.0026	47	6	12	Pass
0.0027	43	6	13	Pass
0.0028	40	6	15	Pass
0.0030	36	6	16	Pass
0.0031	36	6	16	Pass
0.0032	32	6	18	Pass
0.0034	31	6	19	Pass
0.0035	31	6	19	Pass
0.0036	29	6	20	Pass
0.0038	29	6	20	Pass
0.0039	27	6	22	Pass
0.0040	26	6	23	Pass
0.0042	26	5	19	Pass
0.0043	26	5	19	Pass
0.0045	25	5	20	Pass
0.0046	23	5	21	Pass
0.0047	23	5	21	Pass
0.0049	23	5	21	Pass
0.0050	23	5	21	Pass
0.0051	23	5	21	Pass
0.0053	21	5	23	Pass
0.0054	19	5	26	Pass
0.0055	18	5	27	Pass
0.0057	17	5	29	Pass
0.0058	16	5	31	Pass
0.0059	16	5	31	Pass
0.0061	15	5	33	Pass
0.0062	15	5	33	Pass
0.0064	14	5	35	Pass
0.0065	13	5	38	Pass
0.0066	13	5	38	Pass
0.0068	13	5	38	Pass
0.0069	13	5	38	Pass
0.0070	13	5	38	Pass
0.0072	13	5	38	Pass
0.0073	13	5	38	Pass
0.0074	13	5	38	Pass
0.0076	13	5	38	Pass
0.0077	11	5	45	Pass
0.0078	11	5	45	Pass

0.0080	11	5	45	Pass
0.0081	11	5	45	Pass
0.0083	11	5	45	Pass
0.0084	11	5	45	Pass
0.0085	11	5	45	Pass
0.0087	11	5	45	Pass
0.0088	11	5	45	Pass
0.0089	11	5	45	Pass
0.0091	11	5	45	Pass
0.0092	11	5	45	Pass
0.0093	11	5	45	Pass
0.0095	10	5	50	Pass
0.0096	10	5	50	Pass
0.0097	9	5	55	Pass
0.0099	9	5	55	Pass
0.0100	8	5	62	Pass
0.0102	8	5	62	Pass
0.0103	8	5	62	Pass
0.0104	8	5	62	Pass
0.0106	8	5	62	Pass
0.0107	8	5	62	Pass
0.0108	8	5	62	Pass
0.0110	8	5	62	Pass
0.0111	8	5	62	Pass
0.0112	8	5	62	Pass
0.0114	8	5	62	Pass
0.0115	8	5	62	Pass
0.0116	8	5	62	Pass
0.0118	8	5	62	Pass
0.0119	8	5	62	Pass
0.0121	7	5	71	Pass
0.0122	7	5	71	Pass
0.0123	7	5	71	Pass
0.0125	7	5	71	Pass
0.0126	6	5	83	Pass
0.0127	6	5	83	Pass
0.0129	6	5	83	Pass
0.0130	6	5	83	Pass
0.0131	6	5	83	Pass
0.0133	6	5	83	Pass
0.0134	6	5	83	Pass
0.0135	6	4	66	Pass
0.0137	6	4	66	Pass
0.0138	6	4	66	Pass
0.0140	6	4	66	Pass
0.0141	5	4	80	Pass
0.0142	5	4	80	Pass

Water Quality

Water Quality BMP Flow and Volume for POC #1

On-line facility volume: 0 acre-feet

On-line facility target flow: 0 cfs.

Adjusted for 15 min: 0 cfs.

Off-line facility target flow: 0 cfs.

Adjusted for 15 min: 0 cfs.

LID Report

LID Technique	Used for Treatment?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Channel 1 POC	<input type="checkbox"/>	0.03			<input type="checkbox"/>	0.00			
Gravel Trench Bed 1	<input type="checkbox"/>	52.97			<input type="checkbox"/>	99.76			
Gravel Trench Bed 2	<input type="checkbox"/>	128.94			<input type="checkbox"/>	99.89			
Total Volume Infiltrated		181.91	0.00	0.00		99.85	0.00	0%	No Treat Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Passed

Model Default Modifications

Total of 0 changes have been made.

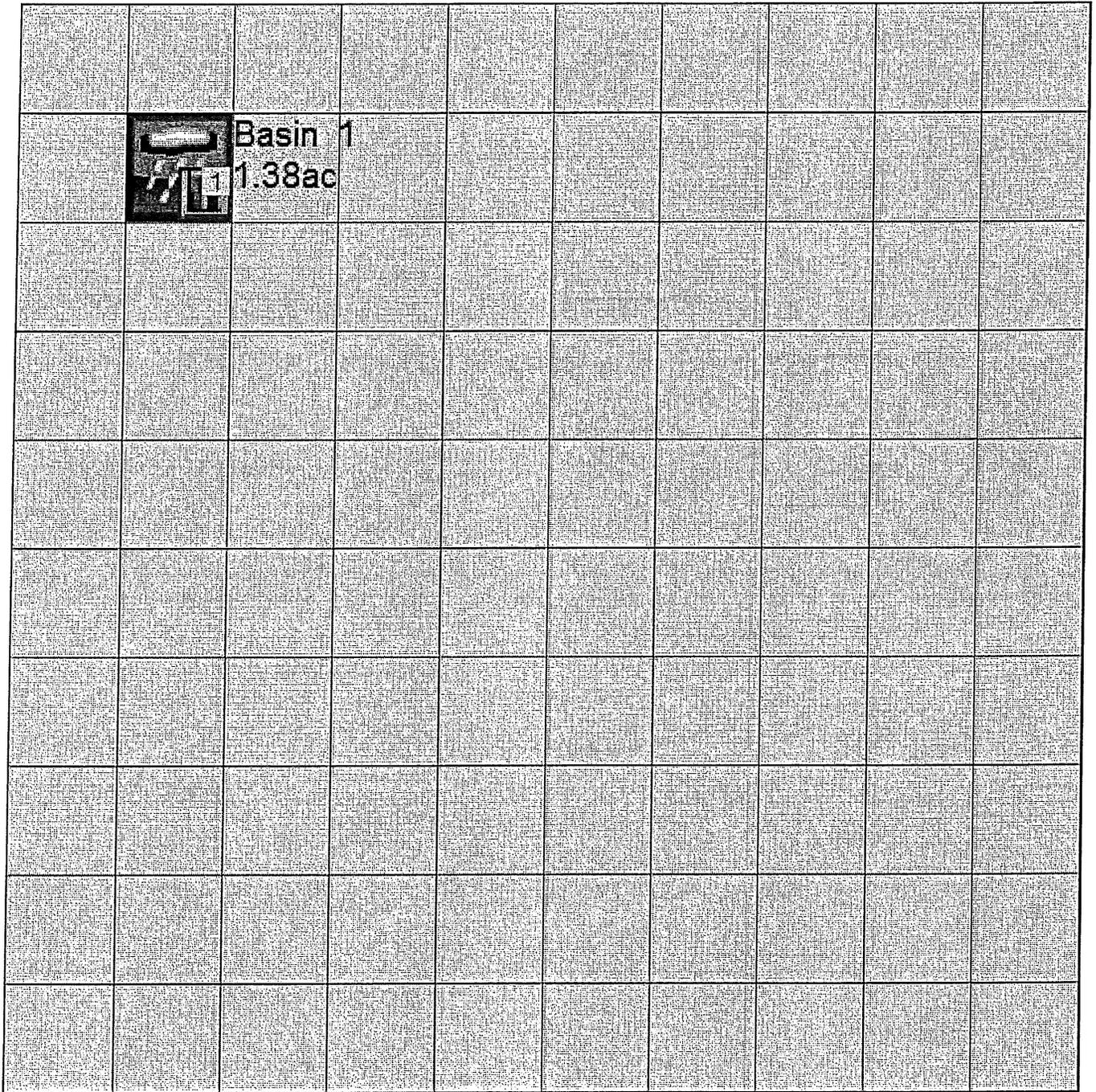
PERLND Changes

No PERLND changes have been made.

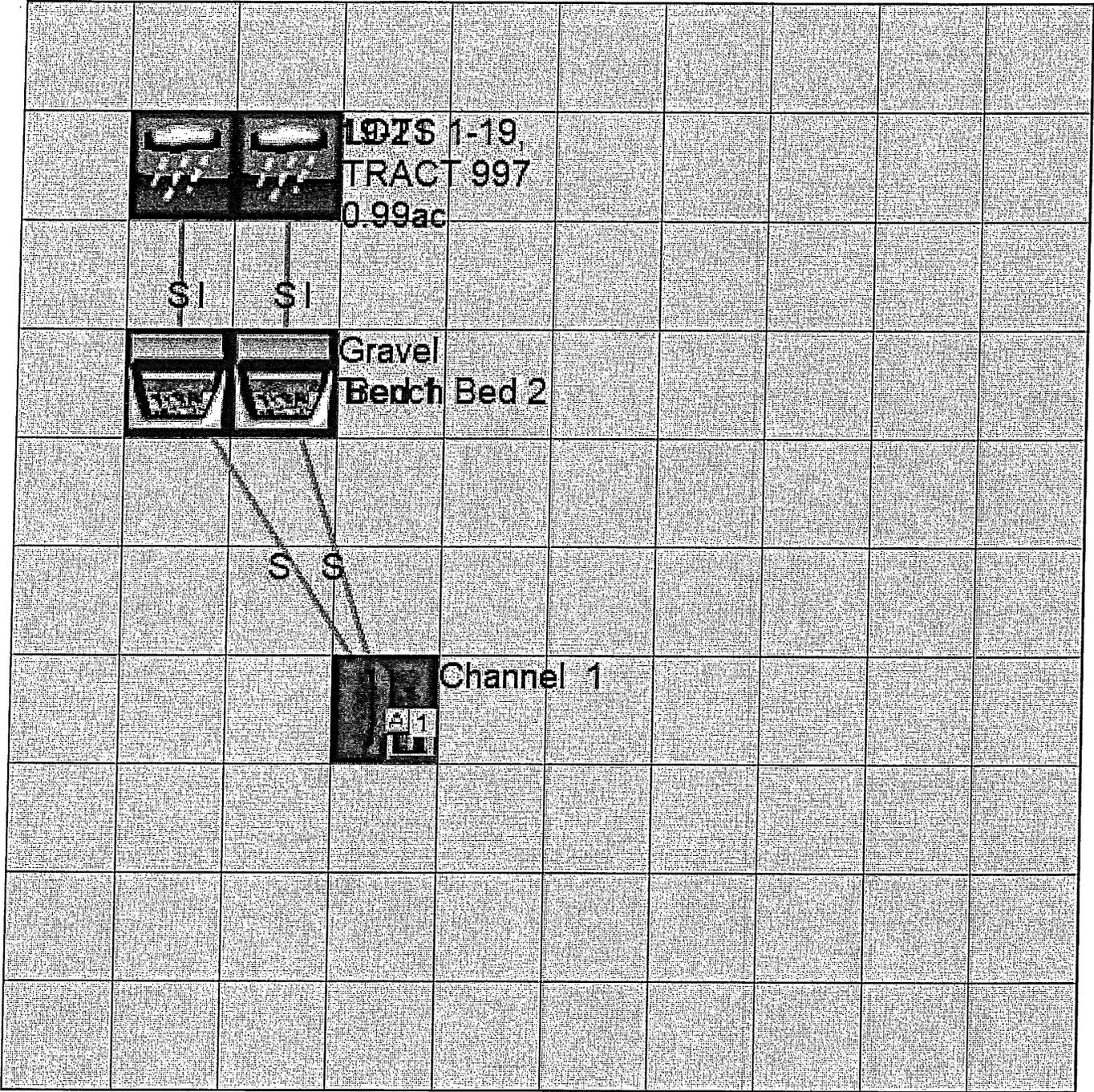
IMPLND Changes

No IMPLND changes have been made.

Appendix
Predeveloped Schematic



Mitigated Schematic



Predeveloped UCI File

RUN

GLOBAL

WVHM4 model simulation
START 1948 10 01 END 2009 09 30
RUN INTERP OUTPUT LEVEL 3 0
RESUME 0 RUN 1 UNIT SYSTEM 1

END GLOBAL

FILES

<File>	<Un#>	<-----File Name----->	***
<-ID->			***
WDM	26	17-0807 - infil.wdm	
MESSU	25	Pre17-0807 - infil.MES	
	27	Pre17-0807 - infil.L61	
	28	Pre17-0807 - infil.L62	
	30	POC17-0807 - infill.dat	

END FILES

OPN SEQUENCE

INGRP INDELT 00:15
PERLND 1
COPY 501
DISPLY 1

END INGRP

END OPN SEQUENCE

DISPLY

DISPLY-INFO1

#	-	#	<-----Title----->	***	TRAN	PIVL	DIG1	FIL1	PYR	DIG2	FIL2	YRND
1			Basin 1		MAX				1	2	30	9

END DISPLY-INFO1

END DISPLY

COPY

TIMESERIES

#	-	#	NPT	NMN	***
1			1	1	
501			1	1	

END TIMESERIES

END COPY

GENER

OPCODE

#	#	OPCD	***

END OPCODE

PARM

#	#	K	***

END PARM

END GENER

PERLND

GEN-INFO

<PLS >	<-----Name----->	NBLKS	Unit-systems	Printer	***	
#	-	#	User	t-series	Engl Metr	***
			in	out		***

1	A/B, Forest, Flat	1	1	1	1	27	0
---	-------------------	---	---	---	---	----	---

END GEN-INFO

*** Section PWATER***

ACTIVITY

<PLS >	***** Active Sections *****														
#	-	#	ATMP	SNOW	PWAT	SED	PST	PWG	PQAL	MSTL	PEST	NITR	PHOS	TRAC	***
1			0	0	1	0	0	0	0	0	0	0	0	0	

END ACTIVITY

PRINT-INFO

<PLS >	***** Print-flags *****													PIVL	PYR		
#	-	#	ATMP	SNOW	PWAT	SED	PST	PWG	PQAL	MSTL	PEST	NITR	PHOS	TRAC	*****		
1			0	0	4	0	0	0	0	0	0	0	0	0		1	9

END PRINT-INFO

PWAT-PARM1

<PLS > PWATER variable monthly parameter value flags ***
- # CSNO RTOP UZFG VCS VUZ VNN VIFW VIRC VLE INFC HWT ***
1 0 0 0 0 0 0 0 0 0 0 0
END PWAT-PARM1

PWAT-PARM2

<PLS > PWATER input info: Part 2 ***
- # ***FOREST LZSN INFILT LSUR SLSUR KVARV AGWRC
1 0 5 2 400 0.05 0.3 0.996
END PWAT-PARM2

PWAT-PARM3

<PLS > PWATER input info: Part 3 ***
- # ***PETMAX PETMIN INFEXP INFILD DEEPFR BASETP AGWETP
1 0 0 2 2 0 0 0
END PWAT-PARM3

PWAT-PARM4

<PLS > PWATER input info: Part 4 ***
- # CEPSC UZSN NSUR INTFW IRC LZETP ***
1 0.2 0.5 0.35 0 0.7 0.7
END PWAT-PARM4

PWAT-STATE1

<PLS > *** Initial conditions at start of simulation
ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
- # *** CEPS SURS UZS IFWS LZS AGWS GWVS
1 0 0 0 0 3 1 0
END PWAT-STATE1

END PERLND

IMPLND

GEN-INFO

<PLS ><-----Name-----> Unit-systems Printer ***
- # User t-series Engl Metr ***
in out ***

END GEN-INFO

*** Section IWATER***

ACTIVITY

<PLS > ***** Active Sections *****
- # ATMP SNOW IWAT SLD IWG IQAL ***
END ACTIVITY

PRINT-INFO

<ILS > ***** Print-flags ***** PIVL PYR
- # ATMP SNOW IWAT SLD IWG IQAL *****
END PRINT-INFO

IWAT-PARM1

<PLS > IWATER variable monthly parameter value flags ***
- # CSNO RTOP VRS VNN RTLI ***
END IWAT-PARM1

IWAT-PARM2

<PLS > IWATER input info: Part 2 ***
- # *** LSUR SLSUR NSUR RETSC
END IWAT-PARM2

IWAT-PARM3

<PLS > IWATER input info: Part 3 ***
- # ***PETMAX PETMIN
END IWAT-PARM3

IWAT-STATE1

<PLS > *** Initial conditions at start of simulation
- # *** RETS SURS
END IWAT-STATE1

WDM 1 EVAP ENGL 0.76 PERLND 1 999 EXTNL PETINP
WDM 1 EVAP ENGL 0.76 IMPLND 1 999 EXTNL PETINP

END EXT SOURCES

EXT TARGETS

<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name> # <Name> # #<-factor->strg <Name> # <Name> tem strg strg***
COPY 501 OUTPUT MEAN 1 1 48.4 WDM 501 FLOW ENGL REPL
END EXT TARGETS

MASS-LINK

<Volume> <-Grp> <-Member-><--Mult--> <Target> <-Grp> <-Member->***
<Name> # <Name> # #<-factor-> <Name> <Name> # #***
MASS-LINK 12
PERLND PWATER SURO 0.083333 COPY INPUT MEAN
END MASS-LINK 12

MASS-LINK 13
PERLND PWATER IFWO 0.083333 COPY INPUT MEAN
END MASS-LINK 13

END MASS-LINK

END RUN .

Mitigated UCI File

RUN

GLOBAL

WVHM4 model simulation
START 1948 10 01 END 2009 09 30
RUN INTERP OUTPUT LEVEL 3 0
RESUME 0 RUN 1 UNIT SYSTEM 1
END GLOBAL

FILES

<File>	<Un#>	<-----File Name----->	***
<-ID->			***
WDM	26	17-0807 - infil.wdm	
MESSU	25	Mit17-0807 - infil.MES	
	27	Mit17-0807 - infil.L61	
	28	Mit17-0807 - infil.L62	
	30	POC17-0807 - infill1.dat	

END FILES

OPN SEQUENCE

INGRP INDELT 00:15

PERLND	7
IMPLND	4
IMPLND	11
IMPLND	1
IMPLND	5
IMPLND	8
RCHRES	1
RCHRES	2
RCHRES	3
COPY	1
COPY	501
DISPLY	1

END INGRP

END OPN SEQUENCE

DISPLY

DISPLY-INFO1

#	-	#	<-----Title----->	***	TRAN	PIVL	DIG1	FIL1	PYR	DIG2	FIL2	YRND
1			Channel 1		MAX				1	2	30	9

END DISPLY-INFO1

END DISPLY

COPY

TIMESERIES

#	-	#	NPT	NMN	***
1			1	1	
501			1	1	

END TIMESERIES

END COPY

GENER

OPCODE

#	#	OPCD	***
---	---	------	-----

END OPCODE

PARM

#	#	K	***
---	---	---	-----

END PARM

END GENER

PERLND

GEN-INFO

<PLS >	<-----Name----->	NBLKS	Unit-systems	Printer	***		
#	-	#	User	t-series	Engl Metr	***	
			in	out		***	
7	A/B, Lawn, Flat	1	1	1	1	27	0

END GEN-INFO

*** Section PWATER***

ACTIVITY

<PLS > ***** Active Sections *****
- # ATMP SNOW PWAT SED PST PWG PQAL MSTL PEST NITR PHOS TRAC ***

7 0 0 1 0 0 0 0 0 0 0 0 0
END ACTIVITY

PRINT-INFO

<PLS > ***** Print-flags ***** PIVL PYR
- # ATMP SNOW PWAT SED PST PWG PQAL MSTL PEST NITR PHOS TRAC *****
7 0 0 4 0 0 0 0 0 0 0 0 0 1 9
END PRINT-INFO

PWAT-PARM1

<PLS > PWATER variable monthly parameter value flags ***
- # CSNO RTOP UZFG VCS VUZ VNN VIFW VIRC VLE INFC HWT ***
7 0 0 0 0 0 0 0 0 0 0 0
END PWAT-PARM1

PWAT-PARM2

<PLS > PWATER input info: Part 2 ***
- # ***FOREST LZSN INFILT L SUR SLSUR KVARY AGWRC
7 0 5 0.8 400 0.05 0.3 0.996
END PWAT-PARM2

PWAT-PARM3

<PLS > PWATER input info: Part 3 ***
- # ***PETMAX PETMIN INFEXP INFILD DEEPFR BASETP AGWETP
7 0 0 2 2 0 0 0
END PWAT-PARM3

PWAT-PARM4

<PLS > PWATER input info: Part 4 ***
- # CEPSC UZSN NSUR INTFW IRC LZETP ***
7 0.1 0.5 0.25 0 0.7 0.25
END PWAT-PARM4

PWAT-STATE1

<PLS > *** Initial conditions at start of simulation
ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
- # *** CEPS SURS UZS IFWS LZS AGWS GWVS
7 0 0 0 0 3 1 0
END PWAT-STATE1

END PERLND

IMPLND

GEN-INFO

<PLS > <-----Name-----> Unit-systems Printer ***
- # User t-series Engr Metr ***
in out ***
4 ROOF TOPS/FLAT 1 1 1 27 0
11 PARKING/FLAT 1 1 1 27 0
1 ROADS/FLAT 1 1 1 27 0
5 DRIVEWAYS/FLAT 1 1 1 27 0
8 SIDEWALKS/FLAT 1 1 1 27 0
END GEN-INFO

*** Section IWATER***

ACTIVITY

<PLS > ***** Active Sections *****
- # ATMP SNOW IWAT SLD IWG IQAL ***
4 0 0 1 0 0 0
11 0 0 1 0 0 0
1 0 0 1 0 0 0
5 0 0 1 0 0 0
8 0 0 1 0 0 0
END ACTIVITY

PRINT-INFO

<ILS > ***** Print-flags ***** PIVL PYR
- # ATMP SNOW IWAT SLD IWG IQAL *****
4 0 0 4 0 0 0 1 9
11 0 0 4 0 0 0 1 9
1 0 0 4 0 0 0 1 9

```

5      0      0      4      0      0      0      1      9
8      0      0      4      0      0      0      1      9
END PRINT-INFO

```

```

IWAT-PARM1
<PLS > IWATER variable monthly parameter value flags ***
# - # CSNO RTOP VRS VNN RTLI ***
4      0      0      0      0      0
11     0      0      0      0      0
1      0      0      0      0      0
5      0      0      0      0      0
8      0      0      0      0      0
END IWAT-PARM1

```

```

IWAT-PARM2
<PLS > IWATER input info: Part 2 ***
# - # *** LSUR SLSUR NSUR RETSC
4      400      0.01      0.1      0.1
11     400      0.01      0.1      0.1
1      400      0.01      0.1      0.1
5      400      0.01      0.1      0.1
8      400      0.01      0.1      0.1
END IWAT-PARM2

```

```

IWAT-PARM3
<PLS > IWATER input info: Part 3 ***
# - # *** PETMAX PETMIN
4      0      0
11     0      0
1      0      0
5      0      0
8      0      0
END IWAT-PARM3

```

```

IWAT-STATE1
<PLS > *** Initial conditions at start of simulation
# - # *** RETS SURS
4      0      0
11     0      0
1      0      0
5      0      0
8      0      0
END IWAT-STATE1

```

END IMPLND

```

SCHEMATIC
<-Source->          <--Area-->          <-Target->          MBLK          ***
<Name> #           <-factor->          <Name> #          Tbl#          ***
LOTS 19-21***
PERLND 7           0.09          RCHRES 1          2
PERLND 7           0.09          RCHRES 1          3
IMPLND 4           0.1           RCHRES 1          5
IMPLND 11          0.2           RCHRES 1          5
LOTS 1-19, TRACT 997***
PERLND 7           0.26          RCHRES 2          2
PERLND 7           0.26          RCHRES 2          3
IMPLND 1           0.17          RCHRES 2          5
IMPLND 4           0.37          RCHRES 2          5
IMPLND 5           0.17          RCHRES 2          5
IMPLND 8           0.02          RCHRES 2          5

```

```

*****Routing*****
RCHRES 1           1          RCHRES 3          7
RCHRES 1           1          COPY 1          17
RCHRES 2           1          RCHRES 3          7
RCHRES 2           1          COPY 1          17
RCHRES 3           1          COPY 501         16
END SCHEMATIC

```

```

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name> # <Name> # #<-factor->strg <Name> # # <Name> # # ***
COPY 501 OUTPUT MEAN 1 1 48.4 DISPLY 1 INPUT TIMSER 1

```

```

<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name> # <Name> # #<-factor->strg <Name> # # <Name> # # ***
END NETWORK

```

```

RCHRES
GEN-INFO
RCHRES      Name      Nexits  Unit Systems  Printer      ***
# - #<-----><-----> User T-series Engl Metr LKFG      ***
              in out
1   Gravel Trench Be-005  2    1    1    1    28    0    1
2   Gravel Trench Be-007  2    1    1    1    28    0    1
3   Channel 1             1    1    1    1    28    0    1
END GEN-INFO
*** Section RCHRES***

```

```

ACTIVITY
<PLS > ***** Active Sections *****
# - # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
1   1   0   0   0   0   0   0   0   0   0
2   1   0   0   0   0   0   0   0   0   0
3   1   0   0   0   0   0   0   0   0   0
END ACTIVITY

```

```

PRINT-INFO
<PLS > ***** Print-flags ***** PIVL  PYR
# - # HYDR ADCA CONS HEAT SED  GOL  OXRX NUTR PLNK PHCB PIVL  PYR  *****
1   4   0   0   0   0   0   0   0   0   0   1   9
2   4   0   0   0   0   0   0   0   0   0   1   9
3   4   0   0   0   0   0   0   0   0   0   1   9
END PRINT-INFO

```

```

HYDR-PARM1
RCHRES  Flags for each HYDR Section      ***
# - # VC A1 A2 A3  ODFVFG for each *** ODGTFG for each  FUNCT for each
      FG FG FG FG  possible exit *** possible exit  possible exit
      * * * * * * * * * * * * * * * * * * * * * *
1   0 1 0 0   4 5 0 0 0   0 0 0 0 0   2 2 2 2 2
2   0 1 0 0   4 5 0 0 0   0 0 0 0 0   2 2 2 2 2
3   0 1 0 0   4 0 0 0 0   0 0 0 0 0   2 2 2 2 2
END HYDR-PARM1

```

```

HYDR-PARM2
# - # FTABNO      LEN      DELTH      STCOR      KS      DB50      ***
<-----><-----><-----><-----><-----><-----><----->
1   1      0.01      0.0      0.0      0.5      0.0
2   2      0.04      0.0      0.0      0.5      0.0
3   3      0.02      0.0      0.0      0.5      0.0
END HYDR-PARM2

```

```

HYDR-INIT
RCHRES  Initial conditions for each HYDR section      ***
# - # *** VOL      Initial value of COLIND      Initial value of OUTDGT
      *** ac-ft      for each possible exit      for each possible exit
<-----><-----><-----><-----><-----><-----><----->
1   0      4.0 5.0 0.0 0.0 0.0      0.0 0.0 0.0 0.0 0.0
2   0      4.0 5.0 0.0 0.0 0.0      0.0 0.0 0.0 0.0 0.0
3   0      4.0 0.0 0.0 0.0 0.0      0.0 0.0 0.0 0.0 0.0
END HYDR-INIT

```

```

END RCHRES

```

```

SPEC-ACTIONS
END SPEC-ACTIONS
FTABLES
FTABLE 1

```

Depth (ft)	Area (acres)	Volume (acre-ft)	Outflow1 (cfs)	Outflow2 (cfs)	Velocity (ft/sec)	Travel Time*** (Minutes)***
0.000000	0.017218	0.000000	0.000000	0.000000		
0.055556	0.017218	0.000335	0.000000	0.069444		
0.111111	0.017218	0.000670	0.000000	0.069444		
0.166667	0.017218	0.001004	0.000000	0.069444		
0.222222	0.017218	0.001339	0.000000	0.069444		
0.277778	0.017218	0.001674	0.000000	0.069444		
0.333333	0.017218	0.002009	0.000000	0.069444		
0.388889	0.017218	0.002344	0.000000	0.069444		
0.444444	0.017218	0.002678	0.000000	0.069444		
0.500000	0.017218	0.003013	0.000000	0.069444		
0.555556	0.017218	0.003348	0.000000	0.069444		
0.611111	0.017218	0.003683	0.000000	0.069444		
0.666667	0.017218	0.004017	0.000000	0.069444		
0.722222	0.017218	0.004352	0.000000	0.069444		
0.777778	0.017218	0.004687	0.000000	0.069444		
0.833333	0.017218	0.005022	0.000000	0.069444		
0.888889	0.017218	0.005357	0.000000	0.069444		
0.944444	0.017218	0.005691	0.000000	0.069444		
1.000000	0.017218	0.006026	0.000000	0.069444		
1.055556	0.017218	0.006361	0.000000	0.069444		
1.111111	0.017218	0.006696	0.000000	0.069444		
1.166667	0.017218	0.007031	0.000000	0.069444		
1.222222	0.017218	0.007365	0.000000	0.069444		
1.277778	0.017218	0.007700	0.000000	0.069444		
1.333333	0.017218	0.008035	0.000000	0.069444		
1.388889	0.017218	0.008370	0.000000	0.069444		
1.444444	0.017218	0.008704	0.000000	0.069444		
1.500000	0.017218	0.009039	0.000000	0.069444		
1.555556	0.017218	0.009374	0.000000	0.069444		
1.611111	0.017218	0.009709	0.000000	0.069444		
1.666667	0.017218	0.010044	0.000000	0.069444		
1.722222	0.017218	0.010378	0.000000	0.069444		
1.777778	0.017218	0.010713	0.000000	0.069444		
1.833333	0.017218	0.011048	0.000000	0.069444		
1.888889	0.017218	0.011383	0.000000	0.069444		
1.944444	0.017218	0.011718	0.000000	0.069444		
2.000000	0.017218	0.012052	0.000000	0.069444		
2.055556	0.017218	0.012387	0.000000	0.069444		
2.111111	0.017218	0.012722	0.000000	0.069444		
2.166667	0.017218	0.013057	0.000000	0.069444		
2.222222	0.017218	0.013391	0.000000	0.069444		
2.277778	0.017218	0.013726	0.000000	0.069444		
2.333333	0.017218	0.014061	0.000000	0.069444		
2.388889	0.017218	0.014396	0.000000	0.069444		
2.444444	0.017218	0.014731	0.000000	0.069444		
2.500000	0.017218	0.015065	0.000000	0.069444		
2.555556	0.017218	0.015400	0.000000	0.069444		
2.611111	0.017218	0.015735	0.000000	0.069444		
2.666667	0.017218	0.016070	0.000000	0.069444		
2.722222	0.017218	0.016405	0.000000	0.069444		
2.777778	0.017218	0.016739	0.000000	0.069444		
2.833333	0.017218	0.017074	0.000000	0.069444		
2.888889	0.017218	0.017409	0.000000	0.069444		
2.944444	0.017218	0.017744	0.000000	0.069444		
3.000000	0.017218	0.018079	0.000000	0.069444		
3.055556	0.017218	0.018413	0.000000	0.069444		
3.111111	0.017218	0.018748	0.000000	0.069444		
3.166667	0.017218	0.019083	0.000000	0.069444		
3.222222	0.017218	0.019418	0.000000	0.069444		
3.277778	0.017218	0.019752	0.000000	0.069444		
3.333333	0.017218	0.020087	0.000000	0.069444		
3.388889	0.017218	0.020422	0.000000	0.069444		
3.444444	0.017218	0.020757	0.000000	0.069444		
3.500000	0.017218	0.021092	0.000000	0.069444		
3.555556	0.017218	0.021426	0.000000	0.069444		
3.611111	0.017218	0.021761	0.000000	0.069444		
3.666667	0.017218	0.022096	0.000000	0.069444		

3.722222	0.017218	0.022431	0.000000	0.069444
3.777778	0.017218	0.022766	0.000000	0.069444
3.833333	0.017218	0.023100	0.000000	0.069444
3.888889	0.017218	0.023435	0.000000	0.069444
3.944444	0.017218	0.023770	0.000000	0.069444
4.000000	0.017218	0.024105	0.000000	0.069444
4.055556	0.017218	0.025061	0.092279	0.069444
4.111111	0.017218	0.026018	0.255267	0.069444
4.166667	0.017218	0.026974	0.441835	0.069444
4.222222	0.017218	0.027931	0.610909	0.069444
4.277778	0.017218	0.028887	0.730523	0.069444
4.333333	0.017218	0.029844	0.799562	0.069444
4.388889	0.017218	0.030800	0.872951	0.069444
4.444444	0.017218	0.031757	0.933224	0.069444
4.500000	0.017218	0.032713	0.989833	0.069444
4.555556	0.017218	0.033670	1.043376	0.069444
4.611111	0.017218	0.034627	1.094302	0.069444
4.666667	0.017218	0.035583	1.142961	0.069444
4.722222	0.017218	0.036540	1.189631	0.069444
4.777778	0.017218	0.037496	1.234539	0.069444
4.833333	0.017218	0.038453	1.277869	0.069444
4.888889	0.017218	0.039409	1.319778	0.069444
4.944444	0.017218	0.040366	1.360396	0.069444
5.000000	0.017218	0.041322	1.399836	0.069444
5.055556	0.017218	0.042279	1.438194	0.069444

END FTABLE 1
 FTABLE 2

92	5	Depth (ft)	Area (acres)	Volume (acre-ft)	Outflow1 (cfs)	Outflow2 (cfs)	Velocity (ft/sec)	Travel Time*** (Minutes)***
0.000000	0.040404	0.000000	0.000000	0.000000	0.000000	0.162963		
0.055556	0.040404	0.000786	0.000000	0.000000	0.162963			
0.111111	0.040404	0.001571	0.000000	0.000000	0.162963			
0.166667	0.040404	0.002357	0.000000	0.000000	0.162963			
0.222222	0.040404	0.003143	0.000000	0.000000	0.162963			
0.277778	0.040404	0.003928	0.000000	0.000000	0.162963			
0.333333	0.040404	0.004714	0.000000	0.000000	0.162963			
0.388889	0.040404	0.005499	0.000000	0.000000	0.162963			
0.444444	0.040404	0.006285	0.000000	0.000000	0.162963			
0.500000	0.040404	0.007071	0.000000	0.000000	0.162963			
0.555556	0.040404	0.007856	0.000000	0.000000	0.162963			
0.611111	0.040404	0.008642	0.000000	0.000000	0.162963			
0.666667	0.040404	0.009428	0.000000	0.000000	0.162963			
0.722222	0.040404	0.010213	0.000000	0.000000	0.162963			
0.777778	0.040404	0.010999	0.000000	0.000000	0.162963			
0.833333	0.040404	0.011785	0.000000	0.000000	0.162963			
0.888889	0.040404	0.012570	0.000000	0.000000	0.162963			
0.944444	0.040404	0.013356	0.000000	0.000000	0.162963			
1.000000	0.040404	0.014141	0.000000	0.000000	0.162963			
1.055556	0.040404	0.014927	0.000000	0.000000	0.162963			
1.111111	0.040404	0.015713	0.000000	0.000000	0.162963			
1.166667	0.040404	0.016498	0.000000	0.000000	0.162963			
1.222222	0.040404	0.017284	0.000000	0.000000	0.162963			
1.277778	0.040404	0.018070	0.000000	0.000000	0.162963			
1.333333	0.040404	0.018855	0.000000	0.000000	0.162963			
1.388889	0.040404	0.019641	0.000000	0.000000	0.162963			
1.444444	0.040404	0.020426	0.000000	0.000000	0.162963			
1.500000	0.040404	0.021212	0.000000	0.000000	0.162963			
1.555556	0.040404	0.021998	0.000000	0.000000	0.162963			
1.611111	0.040404	0.022783	0.000000	0.000000	0.162963			
1.666667	0.040404	0.023569	0.000000	0.000000	0.162963			
1.722222	0.040404	0.024355	0.000000	0.000000	0.162963			
1.777778	0.040404	0.025140	0.000000	0.000000	0.162963			
1.833333	0.040404	0.025926	0.000000	0.000000	0.162963			
1.888889	0.040404	0.026712	0.000000	0.000000	0.162963			
1.944444	0.040404	0.027497	0.000000	0.000000	0.162963			
2.000000	0.040404	0.028283	0.000000	0.000000	0.162963			
2.055556	0.040404	0.029068	0.000000	0.000000	0.162963			
2.111111	0.040404	0.029854	0.000000	0.000000	0.162963			
2.166667	0.040404	0.030640	0.000000	0.000000	0.162963			

2.222222	0.040404	0.031425	0.000000	0.162963
2.277778	0.040404	0.032211	0.000000	0.162963
2.333333	0.040404	0.032997	0.000000	0.162963
2.388889	0.040404	0.033782	0.000000	0.162963
2.444444	0.040404	0.034568	0.000000	0.162963
2.500000	0.040404	0.035354	0.000000	0.162963
2.555556	0.040404	0.036139	0.000000	0.162963
2.611111	0.040404	0.036925	0.000000	0.162963
2.666667	0.040404	0.037710	0.000000	0.162963
2.722222	0.040404	0.038496	0.000000	0.162963
2.777778	0.040404	0.039282	0.000000	0.162963
2.833333	0.040404	0.040067	0.000000	0.162963
2.888889	0.040404	0.040853	0.000000	0.162963
2.944444	0.040404	0.041639	0.000000	0.162963
3.000000	0.040404	0.042424	0.000000	0.162963
3.055556	0.040404	0.043210	0.000000	0.162963
3.111111	0.040404	0.043996	0.000000	0.162963
3.166667	0.040404	0.044781	0.000000	0.162963
3.222222	0.040404	0.045567	0.000000	0.162963
3.277778	0.040404	0.046352	0.000000	0.162963
3.333333	0.040404	0.047138	0.000000	0.162963
3.388889	0.040404	0.047924	0.000000	0.162963
3.444444	0.040404	0.048709	0.000000	0.162963
3.500000	0.040404	0.049495	0.000000	0.162963
3.555556	0.040404	0.050281	0.000000	0.162963
3.611111	0.040404	0.051066	0.000000	0.162963
3.666667	0.040404	0.051852	0.000000	0.162963
3.722222	0.040404	0.052637	0.000000	0.162963
3.777778	0.040404	0.053423	0.000000	0.162963
3.833333	0.040404	0.054209	0.000000	0.162963
3.888889	0.040404	0.054994	0.000000	0.162963
3.944444	0.040404	0.055780	0.000000	0.162963
4.000000	0.040404	0.056566	0.000000	0.162963
4.055556	0.040404	0.058810	0.092279	0.162963
4.111111	0.040404	0.061055	0.255267	0.162963
4.166667	0.040404	0.063300	0.441835	0.162963
4.222222	0.040404	0.065544	0.610909	0.162963
4.277778	0.040404	0.067789	0.730523	0.162963
4.333333	0.040404	0.070034	0.799562	0.162963
4.388889	0.040404	0.072278	0.872951	0.162963
4.444444	0.040404	0.074523	0.933224	0.162963
4.500000	0.040404	0.076768	0.989833	0.162963
4.555556	0.040404	0.079012	1.043376	0.162963
4.611111	0.040404	0.081257	1.094302	0.162963
4.666667	0.040404	0.083502	1.142961	0.162963
4.722222	0.040404	0.085746	1.189631	0.162963
4.777778	0.040404	0.087991	1.234539	0.162963
4.833333	0.040404	0.090236	1.277869	0.162963
4.888889	0.040404	0.092480	1.319778	0.162963
4.944444	0.040404	0.094725	1.360396	0.162963
5.000000	0.040404	0.096970	1.399836	0.162963
5.055556	0.040404	0.099214	1.438194	0.162963

END FTABLE 2

FTABLE 3

91 4

Depth (ft)	Area (acres)	Volume (acre-ft)	Outflow1 (cfs)	Velocity (ft/sec)	Travel Time*** (Minutes)***
0.000000	0.022957	0.000000	0.000000		
0.022222	0.022977	0.000510	0.870124		
0.044444	0.022998	0.001021	2.755333		
0.066667	0.023018	0.001532	5.401836		
0.088889	0.023039	0.002044	8.702821		
0.111111	0.023059	0.002556	12.59127		
0.133333	0.023079	0.003069	17.01911		
0.155556	0.023100	0.003582	21.94920		
0.177778	0.023120	0.004096	27.35151		
0.200000	0.023141	0.004610	33.20092		
0.222222	0.023161	0.005124	39.47594		
0.244444	0.023182	0.005639	46.15785		
0.266667	0.023202	0.006155	53.23005		

0.288889	0.023223	0.006670	60.67772
0.311111	0.023243	0.007187	68.48747
0.333333	0.023264	0.007703	76.64708
0.355556	0.023284	0.008221	85.14535
0.377778	0.023305	0.008738	93.97197
0.400000	0.023326	0.009256	103.1173
0.422222	0.023346	0.009775	112.5726
0.444444	0.023367	0.010294	122.3293
0.466667	0.023387	0.010813	132.3797
0.488889	0.023408	0.011333	142.7164
0.511111	0.023429	0.011854	153.3324
0.533333	0.023449	0.012375	164.2212
0.555556	0.023470	0.012896	175.3766
0.577778	0.023490	0.013418	186.7925
0.600000	0.023511	0.013940	198.4634
0.622222	0.023532	0.014463	210.3838
0.644444	0.023552	0.014986	222.5486
0.666667	0.023573	0.015510	234.9529
0.688889	0.023594	0.016034	247.5919
0.711111	0.023614	0.016558	260.4611
0.733333	0.023635	0.017083	273.5562
0.755556	0.023656	0.017609	286.8730
0.777778	0.023677	0.018135	300.4074
0.800000	0.023697	0.018661	314.1556
0.822222	0.023718	0.019188	328.1138
0.844444	0.023739	0.019715	342.2783
0.866667	0.023760	0.020243	356.6458
0.888889	0.023780	0.020771	371.2128
0.911111	0.023801	0.021300	385.9760
0.933333	0.023822	0.021829	400.9324
0.955556	0.023843	0.022358	416.0787
0.977778	0.023863	0.022889	431.4121
1.000000	0.023884	0.023419	446.9297
1.022222	0.023905	0.023950	462.6287
1.044444	0.023926	0.024481	478.5063
1.066667	0.023947	0.025013	494.5599
1.088889	0.023968	0.025546	510.7870
1.111111	0.023988	0.026079	527.1850
1.133333	0.024009	0.026612	543.7516
1.155556	0.024030	0.027146	560.4844
1.177778	0.024051	0.027680	577.3810
1.200000	0.024072	0.028215	594.4392
1.222222	0.024093	0.028750	611.6569
1.244444	0.024114	0.029285	629.0319
1.266667	0.024135	0.029822	646.5622
1.288889	0.024156	0.030358	664.2457
1.311111	0.024177	0.030895	682.0804
1.333333	0.024198	0.031433	700.0645
1.355556	0.024218	0.031971	718.1960
1.377778	0.024239	0.032509	736.4731
1.400000	0.024260	0.033048	754.8940
1.422222	0.024281	0.033587	773.4570
1.444444	0.024302	0.034127	792.1603
1.466667	0.024323	0.034667	811.0023
1.488889	0.024344	0.035208	829.9813
1.511111	0.024365	0.035749	849.0957
1.533333	0.024386	0.036291	868.3440
1.555556	0.024407	0.036833	887.7246
1.577778	0.024429	0.037376	907.2360
1.600000	0.024450	0.037919	926.8768
1.622222	0.024471	0.038462	946.6455
1.644444	0.024492	0.039006	966.5407
1.666667	0.024513	0.039551	986.5610
1.688889	0.024534	0.040096	1006.705
1.711111	0.024555	0.040641	1026.972
1.733333	0.024576	0.041187	1047.359
1.755556	0.024597	0.041734	1067.867
1.777778	0.024618	0.042280	1088.493
1.800000	0.024639	0.042828	1109.237
1.822222	0.024661	0.043376	1130.096

```

1.844444 0.024682 0.043924 1151.071
1.866667 0.024703 0.044473 1172.160
1.888889 0.024724 0.045022 1193.361
1.911111 0.024745 0.045571 1214.674
1.933333 0.024766 0.046121 1236.098
1.955556 0.024788 0.046672 1257.631
1.977778 0.024809 0.047223 1279.272
2.000000 0.024830 0.047775 1301.021

```

```

END FTABLE 3
END FTABLES

```

EXT SOURCES

```

<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member-> ***
<Name> # <Name> # tem strg<-factor->strg <Name> # # <Name> # # ***
WDM 2 PREC ENGL 1.2 PERLND 1 999 EXTNL PREC
WDM 2 PREC ENGL 1.2 IMPLND 1 999 EXTNL PREC
WDM 1 EVAP ENGL 0.76 PERLND 1 999 EXTNL PETINP
WDM 1 EVAP ENGL 0.76 IMPLND 1 999 EXTNL PETINP

```

END EXT SOURCES

EXT TARGETS

```

<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name> # <Name> # #<-factor->strg <Name> # <Name> tem strg strg***
RCHRES 3 HYDR RO 1 1 1 WDM 1000 FLOW ENGL REPL
RCHRES 3 HYDR STAGE 1 1 1 WDM 1001 STAG ENGL REPL
COPY 1 OUTPUT MEAN 1 1 48.4 WDM 701 FLOW ENGL REPL
COPY 501 OUTPUT MEAN 1 1 48.4 WDM 801 FLOW ENGL REPL

```

END EXT TARGETS

MASS-LINK

```

<Volume> <-Grp> <-Member-><--Mult--> <Target> <-Grp> <-Member->***
<Name> # <Name> # #<-factor-> <Name> <Name> # #***
MASS-LINK 2
PERLND PWATER SURO 0.083333 RCHRES INFLOW IVOL
END MASS-LINK 2

MASS-LINK 3
PERLND PWATER IFWO 0.083333 RCHRES INFLOW IVOL
END MASS-LINK 3

MASS-LINK 5
IMPLND IWATER SURO 0.083333 RCHRES INFLOW IVOL
END MASS-LINK 5

MASS-LINK 7
RCHRES OFLOW OVOL 1 RCHRES INFLOW IVOL
END MASS-LINK 7

MASS-LINK 16
RCHRES ROFLOW COPY INPUT MEAN
END MASS-LINK 16

MASS-LINK 17
RCHRES OFLOW OVOL 1 COPY INPUT MEAN
END MASS-LINK 17

```

END MASS-LINK

END RUN

APPENDIX B

MAINTENANCE & OPERATIONS MANUAL

No. 2 – Infiltration

Maintenance Component	Defect	Conditions When Maintenance is Needed	Results Expected When Maintenance is Performed
General	Trash & Debris	See "Detention Ponds" (No. 1).	See "Detention Ponds" (No. 1).
	Poisonous/Noxious Vegetation	See "Detention Ponds" (No. 1).	See "Detention Ponds" (No. 1).
	Contaminants and Pollution	See "Detention Ponds" (No. 1).	See "Detention Ponds" (No. 1).
	Rodent Holes	See "Detention Ponds" (No. 1).	See "Detention Ponds" (No. 1).
Storage Area	Sediment	Water ponding in infiltration pond after rainfall ceases and appropriate time allowed for infiltration. Treatment basins should infiltrate Water Quality Design Storm Volume within 48 hours, and empty within 24 hours after cessation of most rain events. (A percolation test pit or test of facility indicates facility is only working at 90% of its designed capabilities. Test every 2 to 5 years. If two inches or more sediment is present, remove).	Sediment is removed and/or facility is cleaned so that infiltration system works according to design.
Filter Bags (if applicable)	Filled with Sediment and Debris	Sediment and debris fill bag more than 1/2 full.	Filter bag is replaced or system is redesigned.
Rock Filters	Sediment and Debris	By visual inspection, little or no water flows through filter during heavy rain storms.	Gravel in rock filter is replaced.
Side Slopes of Pond	Erosion	See "Detention Ponds" (No. 1).	See "Detention Ponds" (No. 1).
Emergency Overflow Spillway and Berms over 4 feet in height.	Tree Growth	See "Detention Ponds" (No. 1).	See "Detention Ponds" (No. 1).
	Piping	See "Detention Ponds" (No. 1).	See "Detention Ponds" (No. 1).
Emergency Overflow Spillway	Rock Missing	See "Detention Ponds" (No. 1).	See "Detention Ponds" (No. 1).
	Erosion	See "Detention Ponds" (No. 1).	See "Detention Ponds" (No. 1).
Pre-settling Ponds and Vaults	Facility or sump filled with Sediment and/or debris	6" or designed sediment trap depth of sediment.	Sediment is removed.

No. 5 – Catch Basins

Maintenance Component	Defect	Conditions When Maintenance is Needed	Results Expected When Maintenance is performed
General	Trash & Debris	Trash or debris which is located immediately in front of the catch basin opening or is blocking inletting capacity of the basin by more than 10%.	No Trash or debris located immediately in front of catch basin or on grate opening.
		Trash or debris (in the basin) that exceeds 60 percent of the sump depth as measured from the bottom of basin to invert of the lowest pipe into or out of the basin, but in no case less than a minimum of six inches clearance from the debris surface to the invert of the lowest pipe.	No trash or debris in the catch basin.
		Trash or debris in any inlet or outlet pipe blocking more than 1/3 of its height.	Inlet and outlet pipes free of trash or debris.
		Dead animals or vegetation that could generate odors that could cause complaints or dangerous gases (e.g., methane).	No dead animals or vegetation present within the catch basin.
	Sediment	Sediment (in the basin) that exceeds 60 percent of the sump depth as measured from the bottom of basin to invert of the lowest pipe into or out of the basin, but in no case less than a minimum of 6 inches clearance from the sediment surface to the invert of the lowest pipe.	No sediment in the catch basin
	Structure Damage to Frame and/or Top Slab	Top slab has holes larger than 2 square inches or cracks wider than 1/4 inch (Intent is to make sure no material is running into basin).	Top slab is free of holes and cracks.
		Frame not sitting flush on top slab, i.e., separation of more than 3/4 inch of the frame from the top slab. Frame not securely attached	Frame is sitting flush on the riser rings or top slab and firmly attached.
	Fractures or Cracks in Basin Walls/ Bottom	Maintenance person judges that structure is unsound.	Basin replaced or repaired to design standards.
		Grout fillet has separated or cracked wider than 1/2 inch and longer than 1 foot at the joint of any inlet/outlet pipe or any evidence of soil particles entering catch basin through cracks.	Pipe is regouted and secure at basin wall.
	Settlement/ Misalignment	If failure of basin has created a safety, function, or design problem.	Basin replaced or repaired to design standards.
	Vegetation	Vegetation growing across and blocking more than 10% of the basin opening.	No vegetation blocking opening to basin.
		Vegetation growing in inlet/outlet pipe joints that is more than six inches tall and less than six inches apart.	No vegetation or root growth present.
		Contamination and Pollution	See "Detention Ponds" (No. 1).

No. 5 – Catch Basins

Maintenance Component	Defect	Conditions When Maintenance is Needed	Results Expected When Maintenance is performed
Catch Basin Cover	Cover Not In Place	Cover is missing or only partially in place. Any open catch basin requires maintenance.	Catch basin cover is closed
	Locking Mechanism Not Working	Mechanism cannot be opened by one maintenance person with proper tools. Bolts into frame have less than 1/2 inch of thread.	Mechanism opens with proper tools.
	Cover Difficult to Remove	One maintenance person cannot remove lid after applying normal lifting pressure. (Intent is keep cover from sealing off access to maintenance.)	Cover can be removed by one maintenance person.
Ladder	Ladder Rungs Unsafe	Ladder is unsafe due to missing rungs, not securely attached to basin wall, misalignment, rust, cracks, or sharp edges.	Ladder meets design standards and allows maintenance person safe access.
Metal Grates (If Applicable)	Grate opening Unsafe	Grate with opening wider than 7/8 inch.	Grate opening meets design standards.
	Trash and Debris	Trash and debris that is blocking more than 20% of grate surface inletting capacity.	Grate free of trash and debris.
	Damaged or Missing.	Grate missing or broken member(s) of the grate.	Grate is in place and meets design standards.

No. 6 – Debris Barriers (e.g., Trash Racks)

Maintenance Components	Defect	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
General	Trash and Debris	Trash or debris that is plugging more than 20% of the openings in the barrier.	Barrier cleared to design flow capacity.
Metal	Damaged/ Missing Bars.	Bars are bent out of shape more than 3 inches.	Bars in place with no bends more than 3/4 inch.
		Bars are missing or entire barrier missing.	Bars in place according to design.
		Bars are loose and rust is causing 50% deterioration to any part of barrier.	Barrier replaced or repaired to design standards.
	Inlet/Outlet Pipe	Debris barrier missing or not attached to pipe	Barrier firmly attached to pipe

APPENDIX C
GEOTECHNICAL REPORT

LIU & ASSOCIATES, INC.

Geotechnical Engineering

Engineering Geology

Earth Science

March 31, 2017

Mr. Rick Hanson
Hanson Homes
P. O. Box 2289
Snohomish, WA 98291

Dear Mr. Hanson:

Subject: Geotechnical Investigation
Main Street Townhomes
1237 West Main Street
Monroe, Washington
L&A Job No. 17-038

INTRODUCTION

We understand the development of a townhome project is proposed for the subject property, located at the above address in Monroe, Washington. The project site is a flagstone shaped parcel. The proposed development is to build four townhome buildings in the "flag" portion of the site initially, with the two north buildings each containing four townhome units and the two south buildings each containing 6 units. Two more buildings are to be constructed in the "handle bar" portion of the site in the future. We also understand that onsite stormwater disposal by infiltration is being considered for the development. At your request, we have completed a geotechnical investigation for the proposed development project.

The purpose of this investigation is to explore and characterize subsurface conditions of the project site, evaluate feasibility of onsite stormwater disposal by infiltration, and

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provide geotechnical recommendations on grading, onsite stormwater disposal, erosion mitigation, surface and ground water drainage control, and foundation support to buildings for the proposed development. Presented in this report are our findings of the site conditions, conclusion, and geotechnical recommendations.

PROJECT DESCRIPTION

The proposed townhome buildings are to be three-story, above-grade, wood-framed structures supported on perimeter concrete foundation walls and interior load-bearing walls, beams, and columns. The site is to be accessed from West Main Street via a paved driveway along the west side of the "handle bar" portion and extending northward into the middle of the "flag" portion of the site. Due to the nearly flat terrain of the site, grading and construction of the residences will require minimal cut and fill.

SCOPE OF SERVICES

Our scope of services for this study comprises specifically the following:

1. Review the geologic and soil conditions at the site based on a published geologic map.
2. Explore the site for subsurface conditions with backhoe test pits to depth where a firm bearing soil stratum or a soil layer suitable for disposing stormwater by infiltration is encountered, or to the maximum depth (about 10 feet) capable by the backhoe used in excavating the test pits, whichever occurs first.
3. Perform geotechnical analyses and provide geotechnical recommendations on onsite stormwater disposal, erosion mitigation, surface and ground water drainage

control, and foundation support to buildings for the proposed development based on subsurface conditions encountered by the test pits and results of our geotechnical analyses and laboratory tests on soil samples.

4. Prepare a written report to present our findings, conclusions, and recommendations.

SITE CONDITIONS

SURFACE CONDITION

The general location of the project site is shown on Plate 1 – Vicinity Map. The site is situated in a flood plain of the nearby Skykomish River and its tributary creeks. For our use in this investigation, you provided us with a site and layout plan of the proposed development. The project site is bounded by West Main Street to the south, and adjoined a mixture of commercial and residential development to the east and west and by residential development to the north. The project site is nearly level with a shallow mound along the south side of the "flag" portion of the site, possibly formed by stockpiled soils excavated previously out of the "handle bar" portion of the site.

The terrain within the project site is nearly flat. The site is currently undeveloped and is covered by lawn grass.

GEOLOGIC SETTING

The Surficial Geologic Map of the Skykomish and Snoqualmie Rivers Area, Snohomish and King Counties, Washington, by Derek B Booth, published by U. S. Geological Survey in 1990, was referenced for the geologic condition of the project site. According

to this publication, the surficial soil unit at and in the vicinity of the project site is mapped as Alluvium Deposits (Q_a).

The alluvium deposits were geologically recent sediment transported and deposited by flooding water of the nearby Skykomish River and its tributary creeks, following the retreat of the last glaciation, the Vashon Stade of the Fraser Glaciation, which occurred during the later stages of the Pleistocene Epoch and retreated from the region some 12,500 years ago. The coarser materials of the alluvium deposits, such as coarse sand, gravel, cobble and boulder, were deposited closer to the river and tributary creek channels and are highly permeable, while the finer materials of the alluvium deposits, such as clay, silt and fine sand, were laid down farther away from the river/tributary creek channels and are less permeable. The younger alluvium deposits had not been over-ridden by glacier and are generally loose to medium-dense in their natural, undisturbed state.

SOIL CONDITION

Subsurface conditions of the project site were explored with six test pits. The test pits were excavated on March 22, 2017, with a rubber-tired backhoe to depths from 8.0 to 9.0. The approximate locations of the test pits are shown on Plate 2 - Site and Exploration Location Plan. The test pits were located with either a tape measure or by visual reference to existing topographic features in the field and on the site survey map, and their locations should be considered as only accurate to the measuring method used.

A geotechnical engineer from our office was present during subsurface exploration, examined the soil and geologic conditions encountered, and completed logs of the test

pits. Soil samples obtained from each soil layer in the test pits were visually classified in general accordance with United Soil Classification System, a copy of which is presented on Plate 3. Detailed descriptions of soils encountered during site exploration are presented in test pit logs on Plates 4 through 6.

Test Pit 5, located in the northwest quadrant of the "handle bar" portion of the site, encountered fill with concrete rubble and chunks of asphalt pavement, glass bottles, plastic sheets, metal parts, fuel cans, etc., mixed in loose dark-brown, organic, soils down to and beyond the excavated depth of 8.5 feet. The remaining five test pits all encountered a layer of loose organic topsoil, about 12 to 16 inches thick, mantling the site. Under the topsoil are layers of weathered soil of brown, loose, silty fine sand and light-gray, medium-dense, silty fine sand, totaling from 3.6 to 5.3 feet thick. The weathered soils are underlain to the depths explored by a alluvium deposit of light-gray, medium-dense, gravelly, cobbly, fine to coarse sand.

GROUNDWATER CONDITION

Groundwater was not encountered by any of the six test pits excavated on the project site. The topsoil and weathered soils are of moderately-high permeability and would allow some storm runoff to infiltrate into the ground, while the underlying alluvium deposit is of very-high permeability and would allow water to seep through very easily. The test pits were excavated in early spring following a very wet winter. Therefore, the winter high groundwater table under the site should be at the site that it would have little or no impact on the proposed development.

GEOLOGIC HAZARDS AND MITIGATION

Erosion and Landslide Hazard

The site is nearly flat and is underlain at shallow depth by an alluvium deposit of medium-dense, gravelly and cobbly sand deposit of moderately high shear strength. Therefore, there should be little or no hazard for soil erosion and landslide to occur on the project site. To further minimize erosion hazard of the site, vegetation cover outside of construction areas should be protected and maintained. Concentrated stormwater should not be discharged uncontrolled onto the ground within the site. Stormwater over impervious surfaces, such as roofs and paved roadway, driveways and parking areas, should be captured by underground drain line systems connected to roof downspouts and catch basins installed in paved areas. Water collected into these drain line systems should be tightlined to discharge into a storm sewer or suitable stormwater disposal facilities.

Seismic Hazard

The Puget Sound region is in an active seismic zone. The project site is underlain at shallow depth by medium-dense, gravelly, cobbly sand soil of very-high permeability. Also, the site is nearly level. Therefore, the potential for seismic hazards, such as landslides, liquefaction, lateral soil spreading, to occur on the site should be minimal. The proposed townhome buildings, however, should be designed for seismic forces induced by strong earthquakes. Based on the soil conditions encountered by the test pits, it is our opinion that Seismic Use Group I and Site Class D should be used in the seismic design of the proposed residences in accordance with the 2012 International Building Code (IBC).

DISCUSSION AND RECOMMENDATIONS

GENERAL

Based on the soil conditions encountered by test pits excavated on the project site, it is our opinion that the project site is suitable for the proposed development from the geotechnical engineering viewpoint, provided that the recommendations in this report are fully implemented and observed during and following completion of construction. Conventional footing foundations constructed on or into the underlying medium-dense to dense alluvium deposit of gravelly sand deposit underlying the site at shallow depth may be used to support proposed residences. Unsuitable surficial topsoil and weak surficial weathered soil should be stripped within footprint of roadway, driveways, parking areas, and areas of structural fill. The fill in the "handle bar" portion of the site should be thoroughly removed down to firm alluvium soil for the development of the future buildings.

The surficial topsoil and weathered soils contain a high percentage of fines and can be easily disturbed when saturated. Grading work in wet winter months may cause significant complications and difficulties. Therefore, earth work should be scheduled and completed from April 1 and October 31, if possible. Otherwise, erosion protection and drainage control measures recommended in this report should be implemented for site stabilization and to facilitate earthwork if it is to be carried out beyond the above dryer period.

TEMPORARY DRAINAGE AND EROSION CONTROL

The onsite surficial weak soils are sensitive to moisture and can be easily disturbed by construction traffic. A layer of clean, 2-to-4-inch quarry spalls should be placed over areas of frequent traffic, such as the entrances to and exit from the site, as required, to protect the subgrade soils from disturbance by construction traffic.

A silt fence should be installed along the downhill sides of construction areas to minimize transport of sediment by storm runoff onto neighboring properties or streets. The bottom of the filter cloth of the silt fences should be anchored in a trench filled with onsite soil.

Intercepting ditches or trench drains should be installed around construction areas, as required, to intercept and drain away storm runoff and near-surface groundwater seepage. Water captured by such ditches or trench drains should be stored in temporary holding and settling ponds onsite. Only clear and clean water may be discharged into the alluvium deposit under the site or into a nearby storm inlet. The storm inlet into which collected stormwater is to be discharged should be covered with a non-woven filter fabric sock to prevent sediment from entering the storm sewer system. The filter sock should be cleaned frequently during construction to prevent clogging, and should be removed after completion of construction.

Spoil soils should be hauled off of the site as soon as possible. Spoil soils and imported structural fill material to be stored onsite should be securely covered with plastic tarps, as required, for protection against erosion.

SITE PREPARATION AND GENERAL GRADING

Vegetation within construction limits should be cleared and grubbed. Loose topsoil and unsuitable surficial soils should be completely stripped down to the medium-dense to dense alluvium deposit of gravelly sand soil within building pads of residences and within paved roadway, driveways, and parking areas. Exposed soils after stripping should be compacted to a non-yielding state with a vibratory mechanical compactor and proof-rolled with a piece of heavy earthwork equipment prior to roadway, driveway, and parking area construction.

EXCAVATION AND FILL SLOPES

Under no circumstance should excavation slopes be steeper than the limits specified by local, state and federal safety regulations if workers have to perform construction work in excavated areas. Unsupported temporary cuts greater than 4 feet in height should be no steeper than 1H:1V. Permanent cut banks should be no steeper than 2-1/4H:1V. Soil condition encountered by cuts and stability of cut slopes should be observed and verified by a geotechnical engineer during excavation.

Permanent fill embankments required to support structural or traffic load should be constructed with compacted structural fill placed over undisturbed, proof-rolled, firm, alluvium soils after the surficial unsuitable soils are completely stripped. The slope of permanent fill embankments should be no steeper than 2-1/4H:1V. Upon completion, the sloping face of permanent fill embankments should be thoroughly compacted to a non-yielding state with a hoe-pack. Permanent fill embankments constructed over ground of 20% or more should be structurally supported laterally.

The above recommended cut slopes and fill embankments are under the assumption that groundwater seepage would not be encountered during construction. If groundwater is encountered, the grading work should be immediately halted and the slope stability re-evaluated. The slopes may have to be flattened and other measures taken to stabilize the slopes. Stormwater should not allowed to flow uncontrolled over cut slopes and fill embankments. Permanent cut slopes or fill embankments should be seeded and vegetated as soon as possible for erosion protection and long-term stability, and should be securely covered with clear plastic sheets, as required, to protect them from erosion until the vegetation is fully established.

STRUCTURAL FILL

Structural fill is the fill that supports structural or traffic load. Structural fill should consist of clean granular soils free of organic, debris and other deleterious substances and with particles not larger than three inches. Structural fill should have a moisture content within one percent of its optimum moisture content at the time of placement. The optimum moisture content is the water content in the soils that enable the soils to be compacted to the highest dry density for a given compaction effort. Onsite soils meeting the above requirements may be used as structural fill. Imported material to be used as structural fill should be clean, free-draining, granular soils containing no more than 7.5 percent by weight finer than the No. 200 sieve based on the fraction of the material passing No. 4 sieve, and should have individual particles not larger than three inches.

The ground over which structural fill is to be placed should be prepared in accordance with recommendations in the SITE PREPARATION AND GENERAL GRADING and

EXCAVATION AND FILL SLOPES sections of this report. Structural fill should be placed in lifts no more than 10 inches thick in its loose state, with each lift compacted to a minimum percentage of the maximum dry density determined by ASTM D1557 (Modified Proctor Method) as follows:

<u>Application</u>	<u>% of Maximum Dry Density</u>
Within building pads and under foundations	95%
Roadway/driveway subgrade	95% for top 3 feet and 90% below
Retaining/foundation wall backfill	92%
Utility trench backfill	95% for top 4 feet and 90% below

In-situ density of structural fill should be tested with a nuclear densometer by a testing agency specialized in fill placement and construction work. Testing frequency should be one test per every 250 square feet per lift of fill.

ONSITE STORMWATER DISPOSAL

General

The alluvium soil deposit of gravelly, cobbly sand deposit underlying the site at the depth of about 5.0 to 6.0 feet below existing ground surface is of very-high permeability and would be able to support onsite stormwater disposal by infiltration easily.

Design Infiltration Rate

The alluvium deposit of gravelly cobbly sand underlying the project site is of such high permeability that it will allow water to seep through very quick. In-situ infiltration test in

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this soil deposit would not be possible as water will not accumulate in test pits excavated into this deposit to allow for infiltration test. This type of alluvium deposit would have a in-situ infiltration rate of 40 iph or more. We recommend a design infiltration rate of 4.0 iph (inches per hour) with a factor of safety of 10 be used for sizing infiltration trenches.

Design Infiltration Rate

The alluvium deposit of gravelly cobbly sand underlying the project site is of such high permeability that it will allow water to seep through very quick. In-situ infiltration test in this soil deposit would not be possible as water will not accumulate in test pits excavated into this deposit to allow for infiltration test. This type of alluvium deposit would have a in-situ infiltration rate of 40 iph or more. We recommend a design infiltration rate of 4.0 iph (inches per hour) with a factor of safety of at least 10.0 be used for sizing infiltration trenches.

Infiltration Trench Construction

Infiltration trenches should be cut at least 12 inches into the alluvium deposit of gravelly sand soil. To reach this target soil stratum the trenches would have to be excavated to depths of about 6.0 to 7.0 feet or more. The condition of the soil unit at bottom of trenches should be verified by a geotechnical engineer. The stability of the trench cut banks should also be checked out by a geotechnical engineer during excavation.

The trenches should be at least 24 inches wide. The side walls (but not the bottom) of the trenches should be lined with a layer of non-woven filter fabric (MIRAFI 140NS). The

trenches are then to be filled with clean washed 3/4 to 1-1/2 inch gravel to within about 12 inches of finish grade. The dispersion pipes should be constructed of 4-inch rigid PVC pipes and laid level in the gravel or crushed rock filled trenches at about 24 inches below the top of trenches. The dispersion pipes should be spaced at no more than 4 feet apart if multiple dispersion pipes are used. The top of the gravel or crushed rock fill should also be covered with the filter fabric liner. The remaining trenches should then be backfilled in lifts with compacted onsite clean sandy soils. The gravel or crushed rock fill should be placed in lifts no more than 10 inches thick in loose state, with each lift compacted to a non-yielding state with a vibratory mechanical compactor. The compaction and densification of trench fill is critical if it is to support roadway or driveways or parking areas. Stormwater captured over paved roadway, driveways, or parking areas should be routed into a catch basin equipped with an oil-water separator before being released into the infiltration trenches.

If maintaining groundwater quality is critical, the bottom of trenches should be filled with a minimum 12-inch layer of uncompacted amended soil for filtering out pollutants. The amended soil should contain 40 percent (by volume) of compost, mixed with clean, medium to coarse, sand, to achieve an organic content of at least 10% by dry weight.

BUILDING FOUNDATIONS

Conventional footing foundations may be used to support the proposed residences. The footing foundations should be constructed on or into the medium-dense silty fine underlying weathered soil of light-gray, medium-dense, silty fine sand soil. Water should

not be allowed to accumulate in excavated footing trenches. Disturbed soils in footing trenches should be completely removed down to above competent deposit in their native, undisturbed state and footing bearing soils should be thoroughly compacted to a non-yielding state with a vibratory mechanical compactor prior to pouring concrete for footings.

If the above recommendations are followed, our recommended design criteria for footing foundations are as follows:

- The allowable soil bearing pressure for design of footing foundations, including dead and live loads, should be no greater than 2,500 psf. The footing bearing soils should be verified by a geotechnical engineer after the footing trenches are excavated and before the footings poured.
- The minimum depth to bottom of perimeter footings below adjacent final exterior grade should be no less than 18 inches. The minimum depth to bottom of the interior footings below top of floor slab should be no less than 12 inches.
- The minimum width should be no less than 18 inches for continuous footings, and no less than 24 inches for individual footings, except those footings supporting light-weight decks or porches.

A one-third increase in the above recommended allowable soil bearing pressure may be used when considering short-term, transitory, wind or seismic loads. For footing foundations designed and constructed per recommendations above, we estimate that the maximum total post-construction settlement of the buildings should be 3/4 inch or less and the differential settlement across building width should be 1/2 inch or less.

Lateral loads on the proposed residences may be resisted by the friction force between the foundations and the subgrade soils or the passive earth pressure acting on the below-grade portion of the foundations. For the latter, the foundations must be poured "neat" against undisturbed soils or backfilled with a clean, free-draining, compacted structural fill. We recommend that an equivalent fluid density (EFD) of 275 pcf (pounds per cubic foot) for the passive earth pressure be used for lateral resistance. The above passive pressure assumes that the backfill is level or inclines upward away from the foundations for a horizontal distance at least twice the depth of the foundations below the final grade. A coefficient of friction of 0.55 between the foundations and the subgrade soils may be used. The above soil parameters are unfactored values, and a proper factor of safety should be used in calculating the resisting forces against lateral loads on the buildings.

SLAB-ON-GRADE FLOORS

Slab-on-grade floors, if used for the proposed townhome buildings, should be placed on firm subgrade soil prepared as outlined in the SITE PREPARATION AND GENERAL EARTHWORK and the STRUCTURAL FILL sections of this report. Where moisture control is critical, the slab-on-grade floors should be placed on a capillary break which is in turn placed on the compacted subgrade. The capillary break should consist of a minimum four-inch-thick layer of clean, free-draining, 7/8-inch crushed rock, containing no more than 5 percent by weight passing the No. 4 sieve. A vapor barrier, such as a 6-mil plastic membrane, may be placed over the capillary break, as required, to keep moisture from migrating upwards.

PAVED ROADWAY/DRIVEWAYS AND PARKING AREAS

Performance of roadway, driveways, and parking area pavement is critically related to the conditions of the underlying subgrade soils. We recommend that the subgrade soils under the roadways, driveways and parking areas be treated and prepared as described in the SITE PREPARATION AND GENERAL EARTHWORK section of this report. Prior to placing base material, the subgrade soils should be compacted to a non-yielding state with a vibratory roller compactor and proof-rolled with a piece of heavy construction equipment, such as a fully-loaded dump truck. Any areas with excessive flexing or pumping should be over-excavated and re-compacted or replaced with a structural fill or crushed rock placed and compacted in accordance with the recommendations provided in the STRUCTURAL FILL section of this report.

We recommend that a layer of compacted, 7/8-inch crushed rock base (CRB), be placed for the roadways, driveways, and parking areas. This crushed rock base should be at least 6 inches for the public roadways and 4 inches for the private driveways and parking areas. This crushed rock base should be overlain with a 3-inch asphalt treated base (ATB) topped by a 2-inch-thick Class B asphalt concrete (AC) surficial course for the public roads and overlain by a 3-inch-thick Class B asphalt concrete (AC) surficial course for private driveways and parking areas.

DRAINAGE CONTROL

Building Footprint Excavation

Footprint excavation for the proposed townhome buildings, if encountering groundwater seepage, should have bottom of excavation sloped slightly and ditches excavated along

bases of the cut banks to direct collected groundwater into sump pits from which water can be pumped out. A layer of 2-inch crushed rock should be placed over footing bearing subgrade soils, as required, to protect the soils from disturbance by construction traffic. This crushed rock base should be built to a few inches above groundwater level, but not less than 6 inches thick. The crush rock base should be compacted in 12-inch lifts to a non-yielding state with a vibratory mechanical compactor.

Runoff over Impervious Surfaces

Storm runoff over impervious surfaces, such as roofs, paved roadway, driveways and parking areas, should be collected by underground drain line systems connected to downspouts and by catch basins installed in paved roadways, driveways and parking areas. Stormwater thus collected should be tightlined to discharge into a storm sewer or suitable stormwater disposal facilities.

Building Footing Drains

A footing subdrain should be installed around the perimeter footing foundations of each townhome building. The subdrains should consist of a 4-inch-minimum-diameter, perforated, rigid, drain pipe, laid a few inches below bottom of the perimeter footings of the buildings. The trenches and the drain lines should have a sufficient gradient (0.5% minimum) to generate flow by gravity. The drain lines should be wrapped in a non-woven filter fabric sock and completely enclosed in clean washed gravel. The remaining trenches may be backfilled with clean onsite soils. Water collected by the perimeter footing subdrain systems should be tightlined, separately from the roof and surface

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stormwater drain lines, to discharge into a storm sewer or suitable stormwater disposal facilities.

Surface Drainage

Water should not be allowed to stand in any areas where footings, on-grade slabs, or pavement is to be constructed. Finish ground surface should be graded to direct surface runoff away from the adjacent buildings. We recommend the finish ground be sloped at a gradient of 3 percent minimum for a distance of at least 10 feet away from buildings, except in the areas to be paved.

Cleanouts

Sufficient number of cleanouts at strategic locations should be provided for underground drain lines. The underground drain lines should be cleaned and maintained periodically to prevent clogging.

RISK EVALUATION STATEMENT

The subject site is underlain at shallow depth by an alluvium deposit of medium-dense, gravelly, cobbly sand. This deposit is of moderately-high shear strength and the site is nearly level. Therefore, the site should be quite stable. It is our opinion that if the recommendations in this report are fully implemented and observed during and following completion of construction, the areas disturbed by construction will be stabilized and will remain stable, and will not increase potential for soil movement. In our opinion, the risk for damages to the proposed development and from the development to adjacent properties due to soil movement should be minimal.

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LIMITATIONS

This report has been prepared for the specific application to this project for the exclusive use by Hanson Homes and its associates, representatives, consultants and contractors. We recommend that this report, in its entirety, be included in the project contract documents for the information of prospective contractors for their estimating and bidding purposes and for compliance with the recommendations in this report during construction. The conclusions and interpretations in this report, however, should not be construed as a warranty of the subsurface conditions. The scope of this study does not include services related to construction safety precautions and our recommendations are not intended to direct the contractor's methods, techniques, sequences or procedures, except as specifically described in this report for design considerations. All geotechnical construction work should be monitored and inspected by a geotechnical engineer during construction.

Our recommendations and conclusions are based on the geologic and soil conditions encountered in the test pits excavated on the site, and our experience and engineering judgment. The conclusions and recommendations are professional opinions derived in a manner consistent with the level of care and skill ordinarily exercised by other members of the profession currently practicing under similar conditions in this area. No warranty, expressed or implied, is made.

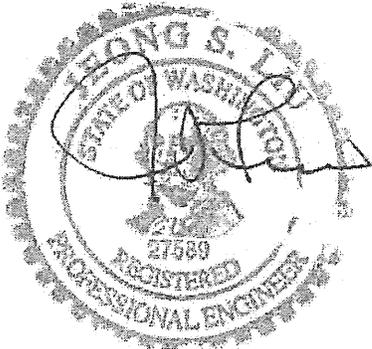
The actual subsurface conditions of the site may vary from those encountered by the test pits excavated on the site. The nature and extent of such variations may not become evident until construction starts. If variations appear then, we should be retained to re-

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evaluate the recommendations of this report, and to verify or modify them in writing prior to proceeding further with the construction of the proposed development of the site.

CLOSURE

We are pleased to be of service to you on this project. Please feel free to contact us if you have questions regarding this report or need further consultation.



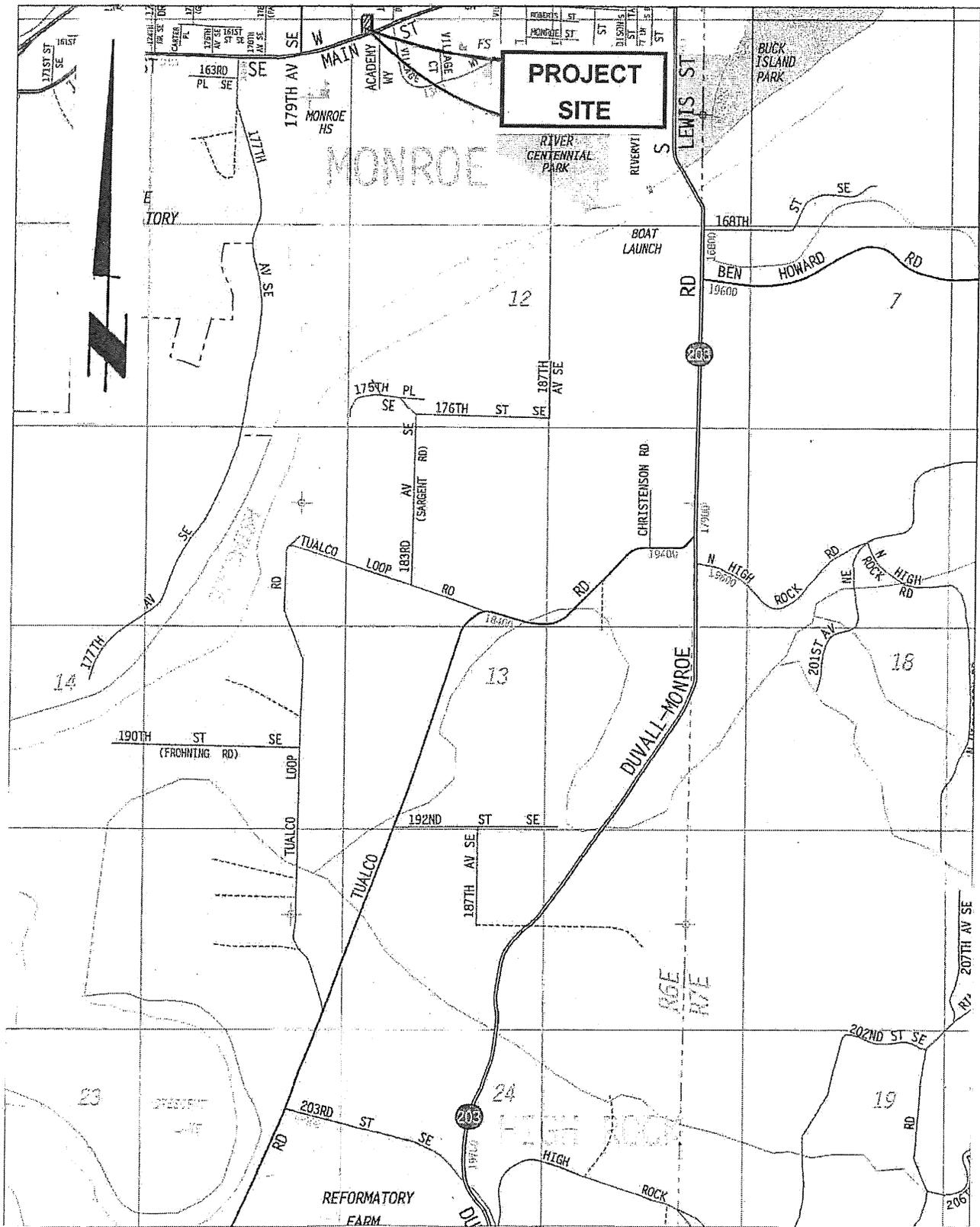
Yours very truly,
LIU & ASSOCIATES, INC.

A handwritten signature in black ink, appearing to read "J. S. Liu".

J. S. (Julian) Liu, Ph.D., P.E.
Principal

Attached: Six Plates and Appendix

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LIU & ASSOCIATES, INC.

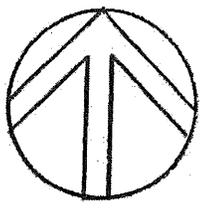
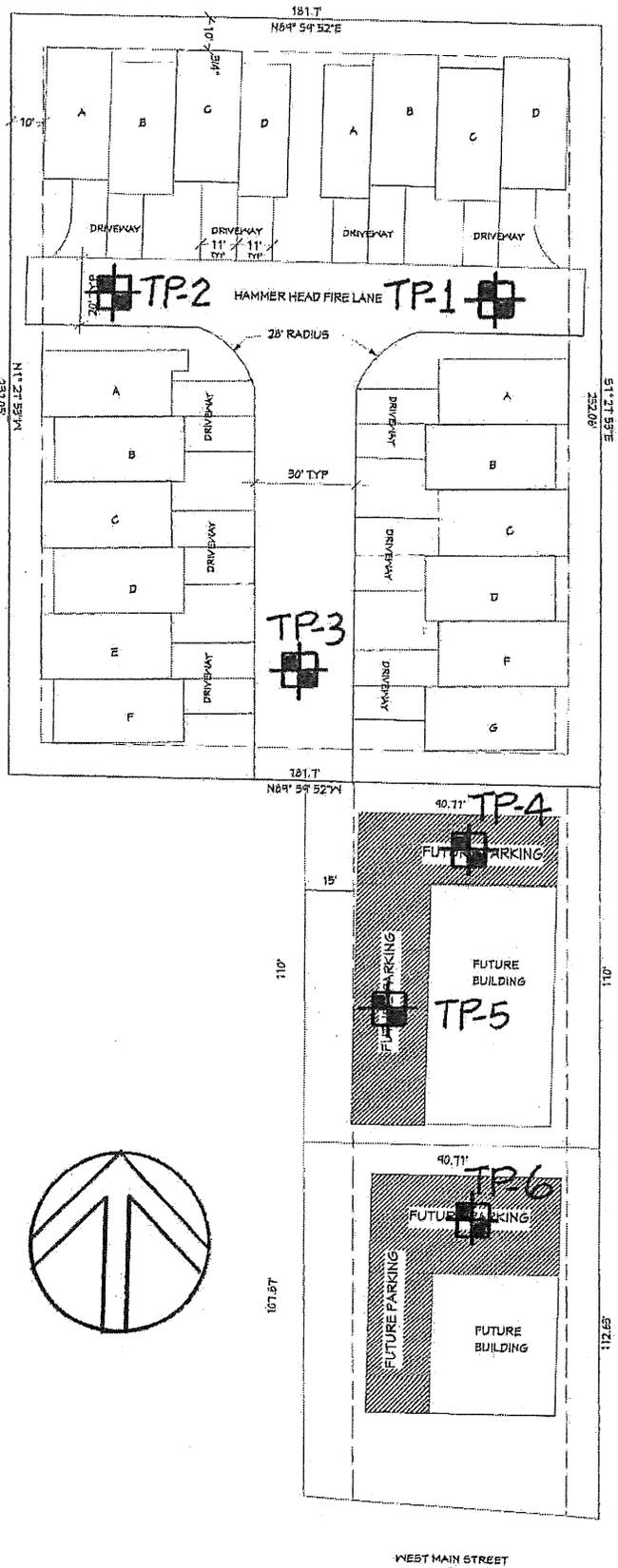
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**VICINITY MAP
 MAIN STREET TOWNHOMES
 1237 W MAIN STREET
 MONROE, WASHINGTON**

JOB NO. 17-038

DATE 3/30/2017

PLATE 1



WEST MAIN STREET

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**SITE AND EXPLORATION LOCATION PLAN
 MAIN STREET TOWNHOMES
 1237 W MAIN STREET
 MONROE, WASHINGTON**

JOB NO. 17-038 DATE 3/30/2017 PLATE 2

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS		GROUP SYMBOL	GROUP NAME		
COARSE-GRAINED SOILS MORE THAN 50% RETAINED ON THE NO. 200 SIEVE	GRAVEL MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVEL	GW WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL GP POORLY-GRADED GRAVEL		
		GRAVEL WITH FINES	GM SILTY GRAVEL GC CLAYEY GRAVEL		
		SAND MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	CLEAN SAND	SW WELL-GRADED SAND, FINE TO COARSE SAND SP POORLY-GRADED SAND	
			SAND WITH FINES	SM SILTY SAND SC CLAYEY SAND	
			SILT AND CLAY LIQUID LIMIT LESS THAN 50%	INORGANIC	ML SILT CL CLAY
			ORGANIC	OL ORGANIC SILT, ORGANIC CLAY	
			SILTY AND CLAY LIQUID LIMIT 50% OR MORE	INORGANIC	MH SILT OF HIGH PLASTICITY, ELASTIC SILT CH CLAY OF HIGH PLASTICITY, FAT CLAY
			ORGANIC	OH ORGANIC SILT, ORGANIC SILT	
HIGHLY ORGANIC SOILS			PT PEAT AND OTHER HIGHLY ORGANIC SOILS		

NOTES:

1. FIELD CLASSIFICATION IS BASED ON VISUAL EXAMINATION OF SOIL IN GENERAL ACCORDANCE WITH ASTM D2488-83.
2. SOIL CLASSIFICATION USING LABORATORY TESTS IS BASED ON ASTM D2487-83.
3. DESCRIPTIONS OF SOIL DENSITY OR CONSISTENCY ARE BASED ON INTERPRETATION OF BLOW-COUNT DATA, VISUAL APPEARANCE OF SOILS, AND/OR TEST DATA.

SOIL MOISTURE MODIFIERS:

- DRY - ABSENCE OF MOISTURE, DUSTY, DRY TO THE TOUCH
- SLIGHTLY MOIST - TRACE MOISTURE, NOT DUSTY
- MOIST - DAMP, BUT NO VISIBLE WATER
- VERY MOIST - VERY DAMP, MOISTURE FELT TO THE TOUCH
- WET - VISIBLE FREE WATER OR SATURATED, USUALLY SOIL IS OBTAINED FROM BELOW WATER TABLE

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UNIFIED SOIL CLASSIFICATION SYSTEM

TEST PIT NO. 1

Logged By: JSL

Date: 3/22/2017

Ground El. ±

Depth ft.	USCS CLASS.	Soil Description	Sample No.	W %	Other Test
1	OL	Dark-brown, loose, organic, silty fine SAND, moist (TOPSOIL)			
2	SM	Light-brown, loose, silty fine SAND, moist			
3					
4	SM	Light-gray, medium-dense, silty fine sand, slightly-moist			
5					
6					
7	SW	Light-gray, medium-dense, gravelly, cobbly, fine to coarse sand, slightly-moist (ALLUVIUM DEPOSIT)			
8					
9					
10		Test pit terminated at 9.0 ft; groundwater not encountered,			

TEST PIT NO. 2

Logged By: JSL

Date: 3/22/2017

Ground El. ±

Depth ft.	USCS CLASS.	Soil Description	Sample No.	W %	Other Test
1	OL	Dark-brown, loose, organic, silty fine SAND, moist (TOPSOIL)			
2	SM	Light-brown, loose, silty fine SAND, moist			
3	SM	Light-gray, medium-dense, silty fine sand, slightly-moist			
4					
5					
6	SW	Light-gray, medium-dense, gravelly, cobbly, fine to coarse sand, slightly-moist (ALLUVIUM DEPOSIT)			
7					
8					
9		Test pit terminated at 8.0 ft; groundwater not encountered,			
10					

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**TEST PIT LOGS
MAIN STREET TOWNHOMES
1237 W MAIN STREET
MONROE, WASHINGTON**

JOB NO. 17-143 DATE 3/22/2017 PLATE 4

TEST PIT NO. 3

Logged By: JSL

Date: 3/22/2017

Ground El. ±

Depth ft.	USCS CLASS.	Soil Description	Sample No.	W %	Other Test
1	OL	Dark-brown, loose, organic, silty fine SAND, moist (TOPSOIL)			
2	SM	Brown to light-brown, loose, silty fine SAND, moist			
3					
4					
5	SM	Light-gray, medium-dense, silty fine sand, slightly-moist			
6					
7	SW	Light-gray, medium-dense, gravelly, cobbly, fine to coarse sand, slightly-moist (ALLUVIUM DEPOSIT)			
8					
9					
10		Test pit terminated at 9.0 ft; groundwater not encountered,			

TEST PIT NO. 4

Logged By: JSL

Date: 3/22/2017

Ground El. ±

Depth ft.	USCS CLASS.	Soil Description	Sample No.	W %	Other Test
1	OL	Dark-brown, loose, organic, silty fine SAND, moist (TOPSOIL)			
2	SM	Brown to light-brown, loose, silty fine SAND, moist			
3					
4	SM	Light-gray, medium-dense, silty fine sand, slightly-moist			
5					
6	SW	Light-gray, medium-dense, gravelly, cobbly, fine to coarse sand, slightly-moist (ALLUVIUM DEPOSIT)			
7					
8					
9		Test pit terminated at 8.0 ft; groundwater not encountered,			
10					

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TEST PIT LOGS
 MAIN STREET TOWNHOMES
 1237 W MAIN STREET
 MONROE, WASHINGTON

JOB NO. 17-038 DATE 3/22/2017 PLATE 5

TEST PIT NO. 5

Logged By: JSL

Date: 3/22/2017

Ground El. ±

Depth ft.	USCS CLASS.	Soil Description	Sample No.	W %	Other Test
1	OL	Dark-brown, loose, organic, silty fine SAND, with concrete rubble, asphalt fragments, glass bottles, plastic sheets, metal parts, fuel cans, etc. mixed in, moist			
2					
3					
4					
5					
6					
7					
8					
9		Test pit terminated at 8.5 ft; groundwater not encountered,			
10					

TEST PIT NO. 6

Logged By: JSL

Date: 3/22/2017

Ground El. ±

Depth ft.	USCS CLASS.	Soil Description	Sample No.	W %	Other Test
1	OL	Dark-brown, loose, organic, silty fine SAND, moist (TOPSOIL)			
2	SM	Brown, loose, silty fine SAND, moist			
3	SM	Light-gray, medium-dense, silty fine sand, slightly-moist			
4					
5	SW	Light-gray, medium-dense, gravelly, cobbly, fine to coarse sand, slightly-moist (ALLUVIUM DEPOSIT)			
6					
7					
8		Test pit terminated at 8.0 ft; groundwater not encountered,			
9					
10					

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TEST PIT LOGS
 MAIN STREET TOWNHOMES
 1237 W MAIN STREET
 MONROE, WASHINGTON

JOB NO. 17-038 DATE 3/22/2017 PLATE 6



MEMORANDUM

To: Tom Gathmann, City of Monroe
From: Brad Lincoln, PE *BL*
Subject: Change in Trip Generation and Traffic Mitigation Fees
Project: Main Brook Townhomes, GTC #17-194
Date: January 21, 2018

This memorandum summarizes the change in traffic impacts, specifically the trip generation and traffic mitigation fees, for the Main Brook Townhomes development. The traffic impacts were evaluated in the Gibson Traffic Consultants, Inc. Traffic Impact Analysis (TIA) dated September 2017. The September 2017 TIA evaluated the impacts of 18 single-family detached units and 4,160 SF of medical/dental office. The assessment of 18 single-family detached units was incorrect with the correct use being 18 multi-family (low-rise) units. Additionally, the medical/dental office may be changed to 10 multi-family (low-rise) units. These changes in use will not change the results of the September 2017 TIA with regards to the impacts to the surrounding roadways; however, the traffic impact fees have been updated based on the change in land use. Additionally, the trip generation has been updated for the new ITE *Trip Generation Manual, 10th Edition (2017)* and the traffic mitigation fees have been updated for the latest fees.

The TIA dated September 2017 assessed the development as generating 321.66 average daily trips (ADT) with 23.44 AM peak-hour trips and 32.85 PM peak-hour trips. The change in trip generation and mitigation fees with each of the proposed options is discussed below.

1. Residential and Medical Office

The initial TIA was completed for single-family residential units and 4,160 SF of medical/dental office. However, the 18 residential units were actually multi-family residential units. The trip generation of the residential units has been updated using ITE Land Use Code 220, Multifamily Housing (Low-Rise). The revised trip generation with the corrected residential land use is summarized in Table 1.

Table 1: Trip Generation Summary

ITE Land Use Code Use Size	Average Daily Trips	AM Peak-Hour Trips			PM Peak-Hour Trips		
		Inbound	Outbound	Total	Inbound	Outbound	Total
LUC 220 Multifamily (Low-Rise) 18 Units	131.76	1.90	6.38	8.28	6.35	3.73	10.08
LUC 720 Medical/Dental Office 4,160 SF	34.80	9.02	2.54	11.56	4.03	10.36	14.39
NEW TRIPS	276.53	10.92	8.92	19.84	10.38	14.09	24.47

The trip generation with the corrected residential land use is lower than what was analyzed in the September 2017 TIA. The impacts of the development will therefore be less than what was analyzed in the previous TIA. The City of Monroe has a traffic mitigation fee of \$1,981.00 per multi-family unit (groupings of 3 or more) and \$12.41 per square foot of commercial use. The City of Monroe traffic mitigation fees with the corrected residential land use is \$87,283.60.

2. All Residential

Additionally, the medical/dental office use is planning to be changed to 10 multi-family apartment units, resulting in a total of 28 multi-family (low-rise) units. The revised trip generation with the corrected residential land use is summarized in Table 2.

Table 2: Trip Generation Summary

ITE Land Use Code Use Size	Average Daily Trips	AM Peak-Hour Trips			PM Peak-Hour Trips		
		Inbound	Outbound	Total	Inbound	Outbound	Total
LUC 220 Multifamily (Low-Rise) 28 Units	204.96	2.96	9.92	12.88	9.88	5.80	15.68

The trip generation with the corrected residential land use and commercial change to apartments is lower than what was analyzed in the September 2017 TIA. The impacts of the development will therefore be less than what was analyzed in the previous TIA. The City of Monroe has a traffic mitigation fee of \$1,981.00 per multi-family unit (groupings of 3 or more). The City of Monroe traffic mitigation fees with the corrected residential land use is \$55,468.00.

3. Conclusion

The trip generation under both scenarios reviewed in this memorandum (18 multi-family units with 4,160 SF of medical/dental office and 28 multi-family units) result in a lower trip generation than what was analyzed in the September 2017 TIA. Therefore, no additional analysis should be required. Additionally, the trip mitigation fees should be updated to \$87,283.60 if the development will consist of 18 multi-family units with 4,160 SF of medical/dental office or \$55,468.00 if the development will consist of 28 multi-family units.

18 Multi-Family and 4,160 SF of Medical Dental Trip Generation Calculations

Main Brook Townhomes
 GTC #17-194

Trip Generation for: **Weekday**
 (a.k.a.): **Average Weekday Daily Trips (AWDT)**

LAND USES	VARIABLE	ITE LU code	Trip Rate	Gross Trips			Internal Crossover		NET EXTERNAL TRIPS BY TYPE						
				% IN	% OUT	In+Out (Total)	% of Gross Trips	Trips In+Out (Total)	IN BOTH DIRECTIONS		DIRECTIONAL ASSIGNMENTS				
									TOTAL	PASS-BY	DIVERTED LINK	NEW	PASS-BY	DIVERTED LINK	NEW
						In+Out (Total)	% of Ext. Trips	In+Out (Total)	% of Ext. Trips	In	Out	In	Out		
Multi-Family (Low-Rise)	18 units	220	7.32	50%	50%	131.76	0%	0.00	0%	0.00	0.00	0.00	0.00	65.88	65.88
Medical/Dental Offices	4,160 KSF	720	34.80	50%	50%	144.77	0%	0.00	0%	0.00	0.00	0.00	0.00	72.39	72.38
Totals						276.53		0.00		0.00	0.00	0.00	0.00	138.27	138.26

Main Brook Townhomes
 GTC #17-194

Trip Generation for: Weekday, Peak Hour of Adjacent Street Traffic, One Hour between 7 and 9 AM
 (a.k.a.): Weekday AM Peak Hour

LAND USES	VARIABLE	ITE LU code	Gross Trips				Internal Crossover		NET EXTERNAL TRIPS BY TYPE							
			Trip Rate	% IN	% OUT	In+Out (Total)	% of Gross Trips	Trips In+Out (Total)	IN BOTH DIRECTIONS		DIRECTIONAL ASSIGNMENTS					
									TOTAL	PASS-BY	DIVERTED LINK	NEW	PASS-BY	DIVERTED LINK	NEW	
								% of Ext. Trips	In+Out (Total)	% of Ext. Trips	In+Out (Total)	In	Out	In	Out	
Multi-Family (Low-Rise)	18 units	220	0.46	23%	77%	8.28	0%	0.00	0%	0.00	0%	8.28	0.00	0.00	1.90	6.38
Medical/Dental Offices	4,160 KSF	720	2.78	78%	22%	11.56	0%	0.00	0%	0.00	0%	11.56	0.00	0.00	9.02	2.54
Totals						19.84		0.00		0.00		19.84	0.00	0.00	10.92	8.92

Main Brook Townhomes
 GTC #17-194

Trip Generation for: Weekday, Peak Hour of Adjacent Street Traffic, One Hour between 4 and 6 PM
 (a.k.a.): Weekday PM Peak Hour

LAND USES		NET EXTERNAL TRIPS BY TYPE													
		IN BOTH DIRECTIONS						DIRECTIONAL ASSIGNMENTS							
		Gross Trips			Internal Crossover			TOTAL	PASS-BY		DIVERGED LINK		NEW		
VARIABLE	ITE LU code	Trip Rate	% IN	% OUT	In+Out (Total)	% of Gross Trips	In+Out (Total)	% of Ext. Trips	In+Out (Total)	% of Ext. Trips	In+Out (Total)	In	Out	In	Out
18 units	220	0.56	63%	37%	10.08	0%	0.00	0%	0.00	0%	10.08	0.00	0.00	6.35	3.73
4,160 KSF	720	3.46	28%	72%	14.39	0%	0.00	0%	0.00	0%	14.39	0.00	0.00	4.03	10.36
Totals					24.47		0.00		0.00		24.47	0.00	0.00	10.38	14.09

28 Multi-Family Trip Generation Calculations

Main Brook Townhomes
 GTC #17-194

Trip Generation for: Weekday
 (a.k.a.): Average Weekday Daily Trips (AWDT)

LAND USES	VARIABLE	ITE LU code	Trip Rate	Gross Trips			Internal Crossover		NET EXTERNAL TRIPS BY TYPE							
				% IN	% OUT	In+Out (Total)	% of Gross Trips	Trips In+Out (Total)	IN BOTH DIRECTIONS		DIRECTIONAL ASSIGNMENTS					
									% of Ext. Trips	In+Out (Total)	PASS-BY	DIVERTED LINK	NEW	NEW		
Multi-Family (Low-Rise)	28 units	220	7.32	50%	50%	204.96	0%	0%	0.00	0.00	0.00	0.00	204.96	204.96	102.48	102.48
Totals						204.96	0.00	0.00	0.00	0.00	0.00	0.00	204.96	204.96	102.48	102.48

Main Brook Townhomes
 GTC #17-194

**Trip Generation for: Weekday, Peak Hour of Adjacent Street Traffic, One Hour between 4 and 6 PM
 (a.k.a.): Weekday PM Peak Hour**

LAND USES		NET EXTERNAL TRIPS BY TYPE														
		IN BOTH DIRECTIONS						DIRECTIONAL ASSIGNMENTS								
		Gross Trips			Internal Crossover			TOTAL		PASS-BY		DIVERTED LINK		NEW		
ITE LU code	VARIABLE	Trip Rate	% IN	% OUT	In+Out (Total)	% of Gross Trips	% of Trips	In+Out (Total)	% of Ext. Trips	In+Out (Total)	% of Ext. Trips	In+Out (Total)	In	Out	In	Out
Multi-Family (Low-Rise)	28 units	0.56	63%	37%	15.68	0%	0%	15.68	0%	0.00	0%	15.68	0.00	0.00	9.88	5.80
Totals					15.68			15.68		0.00		15.68	0.00	0.00	9.88	5.80

LIU & ASSOCIATES, INC.

Geotechnical Engineering

Engineering Geology

Earth Science

March 31, 2017

Mr. Rick Hanson
Hanson Homes
P. O. Box 2289
Snohomish, WA 98291

Dear Mr. Hanson:

Subject: Geotechnical Investigation
Main Street Townhomes
1237 West Main Street
Monroe, Washington
L&A Job No. 17-038

INTRODUCTION

We understand the development of a townhome project is proposed for the subject property, located at the above address in Monroe, Washington. The project site is a flag-stone shaped parcel. The proposed development is to build four townhome buildings in the "flag" portion of the site initially, with the two north buildings each containing four townhome units and the two south buildings each containing 6 units. Two more buildings are to be constructed in the "handle bar" portion of the site in the future. We also understand that onsite stormwater disposal by infiltration is being considered for the development. At your request, we have completed a geotechnical investigation for the proposed development project.

The purpose of this investigation is to explore and characterize subsurface conditions of the project site, evaluate feasibility of onsite stormwater disposal by infiltration, and

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provide geotechnical recommendations on grading, onsite stormwater disposal, erosion mitigation, surface and ground water drainage control, and foundation support to buildings for the proposed development. Presented in this report are our findings of the site conditions, conclusion, and geotechnical recommendations.

PROJECT DESCRIPTION

The proposed townhome buildings are to be three-story, above-grade, wood-framed structures supported on perimeter concrete foundation walls and interior load-bearing walls, beams, and columns. The site is to be accessed from West Main Street via a paved driveway along the west side of the "handle bar" portion and extending northward into the middle of the "flag" portion of the site. Due to the nearly flat terrain of the site, grading and construction of the residences will require minimal cut and fill.

SCOPE OF SERVICES

Our scope of services for this study comprises specifically the following:

1. Review the geologic and soil conditions at the site based on a published geologic map.
2. Explore the site for subsurface conditions with backhoe test pits to depth where a firm bearing soil stratum or a soil layer suitable for disposing stormwater by infiltration is encountered, or to the maximum depth (about 10 feet) capable by the backhoe used in excavating the test pits, whichever occurs first.
3. Perform geotechnical analyses and provide geotechnical recommendations on onsite stormwater disposal, erosion mitigation, surface and ground water drainage

control, and foundation support to buildings for the proposed development based on subsurface conditions encountered by the test pits and results of our geotechnical analyses and laboratory tests on soil samples.

4. Prepare a written report to present our findings, conclusions, and recommendations.

SITE CONDITIONS

SURFACE CONDITION

The general location of the project site is shown on Plate 1 – Vicinity Map. The site is situated in a flood plain of the nearby Skykomish River and its tributary creeks. For our use in this investigation, you provided us with a site and layout plan of the proposed development. The project site is bounded by West Main Street to the south, and adjoined a mixture of commercial and residential development to the east and west and by residential development to the north. The project site is nearly level with a shallow mound along the south side of the "flag" portion of the site, possibly formed by stockpiled soils excavated previously out of the "handle bar" portion of the site.

The terrain within the project site is nearly flat. The site is currently undeveloped and is covered by lawn grass.

GEOLOGIC SETTING

The Surficial Geologic Map of the Skykomish and Snoqualmie Rivers Area, Snohomish and King Counties, Washington, by Derek B Booth, published by U. S. Geological Survey in 1990, was referenced for the geologic condition of the project site. According

to this publication, the surficial soil unit at and in the vicinity of the project site is mapped as Alluvium Deposits (Q_a).

The alluvium deposits were geologically recent sediment transported and deposited by flooding water of the nearby Skykomish River and its tributary creeks, following the retreat of the last glaciation, the Vashon Stade of the Fraser Glaciation, which occurred during the later stages of the Pleistocene Epoch and retreated from the region some 12,500 years ago. The coarser materials of the alluvium deposits, such as coarse sand, gravel, cobble and boulder, were deposited closer to the river and tributary creek channels and are highly permeable, while the finer materials of the alluvium deposits, such as clay, silt and fine sand, were laid down farther away from the river/tributary creek channels and are less permeable. The younger alluvium deposits had not been over-ridden by glacier and are generally loose to medium-dense in their natural, undisturbed state.

SOIL CONDITION

Subsurface conditions of the project site were explored with six test pits. The test pits were excavated on March 22, 2017, with a rubber-tired backhoe to depths from 8.0 to 9.0. The approximate locations of the test pits are shown on Plate 2 - Site and Exploration Location Plan. The test pits were located with either a tape measure or by visual reference to existing topographic features in the field and on the site survey map, and their locations should be considered as only accurate to the measuring method used.

A geotechnical engineer from our office was present during subsurface exploration, examined the soil and geologic conditions encountered, and completed logs of the test

pits. Soil samples obtained from each soil layer in the test pits were visually classified in general accordance with United Soil Classification System, a copy of which is presented on Plate 3. Detailed descriptions of soils encountered during site exploration are presented in test pit logs on Plates 4 through 6.

Test Pit 5, located in the northwest quadrant of the "handle bar" portion of the site, encountered fill with concrete rubble and chunks of asphalt pavement, glass bottles, plastic sheets, metal parts, fuel cans, etc., mixed in loose dark-brown, organic, soils down to and beyond the excavated depth of 8.5 feet. The remaining five test pits all encountered a layer of loose organic topsoil, about 12 to 16 inches thick, mantling the site. Under the topsoil are layers of weathered soil of brown, loose, silty fine sand and light-gray, medium-dense, silty fine sand, totaling from 3.6 to 5.3 feet thick. The weathered soils are underlain to the depths explored by a alluvium deposit of light-gray, medium-dense, gravelly, cobbly, fine to coarse sand.

GROUNDWATER CONDITION

Groundwater was not encountered by any of the six test pits excavated on the project site. The topsoil and weathered soils are of moderately-high permeability and would allow some storm runoff to infiltrate into the ground, while the underlying alluvium deposit is of very-high permeability and would allow water to seep through very easily. The test pits were excavated in early spring following a very wet winter. Therefore, the winter high groundwater table under the site should be at the site that it would have little or no impact on the proposed development.

GEOLOGIC HAZARDS AND MITIGATION

Erosion and Landslide Hazard

The site is nearly flat and is underlain at shallow depth by an alluvium deposit of medium-dense, gravelly and cobbly sand deposit of moderately high shear strength. Therefore, there should be little or no hazard for soil erosion and landslide to occur on the project site. To further minimize erosion hazard of the site, vegetation cover outside of construction areas should be protected and maintained. Concentrated stormwater should not be discharged uncontrolled onto the ground within the site. Stormwater over impervious surfaces, such as roofs and paved roadway, driveways and parking areas, should be captured by underground drain line systems connected to roof downspouts and catch basins installed in paved areas. Water collected into these drain line systems should be tightlined to discharge into a storm sewer or suitable stormwater disposal facilities.

Seismic Hazard

The Puget Sound region is in an active seismic zone. The project site is underlain at shallow depth by medium-dense, gravelly, cobbly sand soil of very-high permeability. Also, the site is nearly level. Therefore, the potential for seismic hazards, such as landslides, liquefaction, lateral soil spreading, to occur on the site should be minimal. The proposed townhome buildings, however, should be designed for seismic forces induced by strong earthquakes. Based on the soil conditions encountered by the test pits, it is our opinion that Seismic Use Group I and Site Class D should be used in the seismic design of the proposed residences in accordance with the 2012 International Building Code (IBC).

DISCUSSION AND RECOMMENDATIONS

GENERAL

Based on the soil conditions encountered by test pits excavated on the project site, it is our opinion that the project site is suitable for the proposed development from the geotechnical engineering viewpoint, provided that the recommendations in this report are fully implemented and observed during and following completion of construction. Conventional footing foundations constructed on or into the underlying medium-dense to dense alluvium deposit of gravelly sand deposit underlying the site at shallow depth may be used to support proposed residences. Unsuitable surficial topsoil and weak surficial weathered soil should be stripped within footprint of roadway, driveways, parking areas, and areas of structural fill. The fill in the "handle bar" portion of the site should be thoroughly removed down to firm alluvium soil for the development of the future buildings.

The surficial topsoil and weathered soils contain a high percentage of fines and can be easily disturbed when saturated. Grading work in wet winter months may cause significant complications and difficulties. Therefore, earth work should be scheduled and completed from April 1 and October 31, if possible. Otherwise, erosion protection and drainage control measures recommended in this report should be implemented for site stabilization and to facilitate earthwork if it is to be carried out beyond the above dryer period.

TEMPORARY DRAINAGE AND EROSION CONTROL

The onsite surficial weak soils are sensitive to moisture and can be easily disturbed by construction traffic. A layer of clean, 2-to-4-inch quarry spalls should be placed over areas of frequent traffic, such as the entrances to and exit from the site, as required, to protect the subgrade soils from disturbance by construction traffic.

A silt fence should be installed along the downhill sides of construction areas to minimize transport of sediment by storm runoff onto neighboring properties or streets. The bottom of the filter cloth of the silt fences should be anchored in a trench filled with onsite soil.

Intercepting ditches or trench drains should be installed around construction areas, as required, to intercept and drain away storm runoff and near-surface groundwater seepage. Water captured by such ditches or trench drains should be stored in temporary holding and settling ponds onsite. Only clear and clean water may be discharged into the alluvium deposit under the site or into a nearby storm inlet. The storm inlet into which collected stormwater is to be discharged should be covered with a non-woven filter fabric sock to prevent sediment from entering the storm sewer system. The filter sock should be cleaned frequently during construction to prevent clogging, and should be removed after completion of construction.

Spoil soils should be hauled off of the site as soon as possible. Spoil soils and imported structural fill material to be stored onsite should be securely covered with plastic tarps, as required, for protection against erosion.

SITE PREPARATION AND GENERAL GRADING

Vegetation within construction limits should be cleared and grubbed. Loose topsoil and unsuitable surficial soils should be completely stripped down to the medium-dense to dense alluvium deposit of gravelly sand soil within building pads of residences and within paved roadway, driveways, and parking areas. Exposed soils after stripping should be compacted to a non-yielding state with a vibratory mechanical compactor and proof-rolled with a piece of heavy earthwork equipment prior to roadway, driveway, and parking area construction.

EXCAVATION AND FILL SLOPES

Under no circumstance should excavation slopes be steeper than the limits specified by local, state and federal safety regulations if workers have to perform construction work in excavated areas. Unsupported temporary cuts greater than 4 feet in height should be no steeper than 1H:1V. Permanent cut banks should be no steeper than 2-1/4H:1V. Soil condition encountered by cuts and stability of cut slopes should be observed and verified by a geotechnical engineer during excavation.

Permanent fill embankments required to support structural or traffic load should be constructed with compacted structural fill placed over undisturbed, proof-rolled, firm, alluvium soils after the surficial unsuitable soils are completely stripped. The slope of permanent fill embankments should be no steeper than 2-1/4H:1V. Upon completion, the sloping face of permanent fill embankments should be thoroughly compacted to a non-yielding state with a hoe-pack. Permanent fill embankments constructed over ground of 20% or more should be structurally supported laterally.

The above recommended cut slopes and fill embankments are under the assumption that groundwater seepage would not be encountered during construction. If groundwater is encountered, the grading work should be immediately halted and the slope stability re-evaluated. The slopes may have to be flattened and other measures taken to stabilize the slopes. Stormwater should not be allowed to flow uncontrolled over cut slopes and fill embankments. Permanent cut slopes or fill embankments should be seeded and vegetated as soon as possible for erosion protection and long-term stability, and should be securely covered with clear plastic sheets, as required, to protect them from erosion until the vegetation is fully established.

STRUCTURAL FILL

Structural fill is the fill that supports structural or traffic load. Structural fill should consist of clean granular soils free of organic, debris and other deleterious substances and with particles not larger than three inches. Structural fill should have a moisture content within one percent of its optimum moisture content at the time of placement. The optimum moisture content is the water content in the soils that enable the soils to be compacted to the highest dry density for a given compaction effort. Onsite soils meeting the above requirements may be used as structural fill. Imported material to be used as structural fill should be clean, free-draining, granular soils containing no more than 7.5 percent by weight finer than the No. 200 sieve based on the fraction of the material passing No. 4 sieve, and should have individual particles not larger than three inches.

The ground over which structural fill is to be placed should be prepared in accordance with recommendations in the SITE PREPARATION AND GENERAL GRADING and

EXCAVATION AND FILL SLOPES sections of this report. Structural fill should be placed in lifts no more than 10 inches thick in its loose state, with each lift compacted to a minimum percentage of the maximum dry density determined by ASTM D1557 (Modified Proctor Method) as follows:

<u>Application</u>	<u>% of Maximum Dry Density</u>
Within building pads and under foundations	95%
Roadway/driveway subgrade	95% for top 3 feet and 90% below
Retaining/foundation wall backfill	92%
Utility trench backfill	95% for top 4 feet and 90% below

In-situ density of structural fill should be tested with a nuclear densometer by a testing agency specialized in fill placement and construction work. Testing frequency should be one test per every 250 square feet per lift of fill.

ONSITE STORMWATER DISPOSAL

General

The alluvium soil deposit of gravelly, cobbly sand deposit underlying the site at the depth of about 5.0 to 6.0 feet below existing ground surface is of very-high permeability and would be able to support onsite stormwater disposal by infiltration easily.

Design Infiltration Rate

The alluvium deposit of gravelly cobbly sand underlying the project site is of such high permeability that it will allow water to seep through very quick. In-situ infiltration test in

this soil deposit would not be possible as water will not accumulate in test pits excavated into this deposit to allow for infiltration test. This type of alluvium deposit would have a in-situ infiltration rate of 40 iph or more. We recommend a design infiltration rate of 4.0 iph (inches per hour) with a factor of safety of 10 be used for sizing infiltration trenches.

Design Infiltration Rate

The alluvium deposit of gravelly cobbly sand underlying the project site is of such high permeability that it will allow water to seep through very quick. In-situ infiltration test in this soil deposit would not be possible as water will not accumulate in test pits excavated into this deposit to allow for infiltration test. This type of alluvium deposit would have a in-situ infiltration rate of 40 iph or more. We recommend a design infiltration rate of 4.0 iph (inches per hour) with a factor of safety of at least 10.0 be used for sizing infiltration trenches.

Infiltration Trench Construction

Infiltration trenches should be cut at least 12 inches into the alluvium deposit of gravelly sand soil. To reach this target soil stratum the trenches would have to be excavated to depths of about 6.0 to 7.0 feet or more. The condition of the soil unit at bottom of trenches should be verified by a geotechnical engineer. The stability of the trench cut banks should also be checked out by a geotechnical engineer during excavation.

The trenches should be at least 24 inches wide. The side walls (but not the bottom) of the trenches should be lined with a layer of non-woven filter fabric (MIRAFI 140NS). The

trenches are then to be filled with clean washed 3/4 to 1-1/2 inch gravel to within about 12 inches of finish grade. The dispersion pipes should be constructed of 4-inch rigid PVC pipes and laid level in the gravel or crushed rock filled trenches at about 24 inches below the top of trenches. The dispersion pipes should be spaced at no more than 4 feet apart if multiple dispersion pipes are used. The top of the gravel or crushed rock fill should also be covered with the filter fabric liner. The remaining trenches should then be backfilled in lifts with compacted onsite clean sandy soils. The gravel or crushed rock fill should be placed in lifts no more than 10 inches thick in loose state, with each lift compacted to a non-yielding state with a vibratory mechanical compactor. The compaction and densification of trench fill is critical if it is to support roadway or driveways or parking areas. Stormwater captured over paved roadway, driveways, or parking areas should be routed into a catch basin equipped with an oil-water separator before being released into the infiltration trenches.

If maintaining groundwater quality is critical, the bottom of trenches should be filled with a minimum 12-inch layer of uncompacted amended soil for filtering out pollutants. The amended soil should contain 40 percent (by volume) of compost, mixed with clean, medium to coarse, sand, to achieve an organic content of at least 10% by dry weight.

BUILDING FOUNDATIONS

Conventional footing foundations may be used to support the proposed residences. The footing foundations should be constructed on or into the medium-dense silty fine underlying weathered soil of light-gray, medium-dense, silty fine sand soil. Water should

not be allowed to accumulate in excavated footing trenches. Disturbed soils in footing trenches should be completely removed down to above competent deposit in their native, undisturbed state and footing bearing soils should be thoroughly compacted to a non-yielding state with a vibratory mechanical compactor prior to pouring concrete for footings.

If the above recommendations are followed, our recommended design criteria for footing foundations are as follows:

- The allowable soil bearing pressure for design of footing foundations, including dead and live loads, should be no greater than 2,500 psf. The footing bearing soils should be verified by a geotechnical engineer after the footing trenches are excavated and before the footings poured.
- The minimum depth to bottom of perimeter footings below adjacent final exterior grade should be no less than 18 inches. The minimum depth to bottom of the interior footings below top of floor slab should be no less than 12 inches.
- The minimum width should be no less than 18 inches for continuous footings, and no less than 24 inches for individual footings, except those footings supporting light-weight decks or porches.

A one-third increase in the above recommended allowable soil bearing pressure may be used when considering short-term, transitory, wind or seismic loads. For footing foundations designed and constructed per recommendations above, we estimate that the maximum total post-construction settlement of the buildings should be 3/4 inch or less and the differential settlement across building width should be 1/2 inch or less.

Lateral loads on the proposed residences may be resisted by the friction force between the foundations and the subgrade soils or the passive earth pressure acting on the below-grade portion of the foundations. For the latter, the foundations must be poured “neat” against undisturbed soils or backfilled with a clean, free-draining, compacted structural fill. We recommend that an equivalent fluid density (EFD) of 275 pcf (pounds per cubic foot) for the passive earth pressure be used for lateral resistance. The above passive pressure assumes that the backfill is level or inclines upward away from the foundations for a horizontal distance at least twice the depth of the foundations below the final grade. A coefficient of friction of 0.55 between the foundations and the subgrade soils may be used. The above soil parameters are unfactored values, and a proper factor of safety should be used in calculating the resisting forces against lateral loads on the buildings.

SLAB-ON-GRADE FLOORS

Slab-on-grade floors, if used for the proposed townhome buildings, should be placed on firm subgrade soil prepared as outlined in the SITE PREPARATION AND GENERAL EARTHWORK and the STRUCTURAL FILL sections of this report. Where moisture control is critical, the slab-on-grade floors should be placed on a capillary break which is in turn placed on the compacted subgrade. The capillary break should consist of a minimum four-inch-thick layer of clean, free-draining, 7/8-inch crushed rock, containing no more than 5 percent by weight passing the No. 4 sieve. A vapor barrier, such as a 6-mil plastic membrane, may be placed over the capillary break, as required, to keep moisture from migrating upwards.

PAVED ROADWAY/DRIVEWAYS AND PARKING AREAS

Performance of roadway, driveways, and parking area pavement is critically related to the conditions of the underlying subgrade soils. We recommend that the subgrade soils under the roadways, driveways and parking areas be treated and prepared as described in the SITE PREPARATION AND GENERAL EARTHWORK section of this report. Prior to placing base material, the subgrade soils should be compacted to a non-yielding state with a vibratory roller compactor and proof-rolled with a piece of heavy construction equipment, such as a fully-loaded dump truck. Any areas with excessive flexing or pumping should be over-excavated and re-compacted or replaced with a structural fill or crushed rock placed and compacted in accordance with the recommendations provided in the STRUCTURAL FILL section of this report.

We recommend that a layer of compacted, 7/8-inch crushed rock base (CRB), be placed for the roadways, driveways, and parking areas. This crushed rock base should be at least 6 inches for the public roadways and 4 inches for the private driveways and parking areas. This crushed rock base should be overlain with a 3-inch asphalt treated base (ATB) topped by a 2-inch-thick Class B asphalt concrete (AC) surficial course for the public roads and overlain by a 3-inch-thick Class B asphalt concrete (AC) surficial course for private driveways and parking areas.

DRAINAGE CONTROL

Building Footprint Excavation

Footprint excavation for the proposed townhome buildings, if encountering groundwater seepage, should have bottom of excavation sloped slightly and ditches excavated along

bases of the cut banks to direct collected groundwater into sump pits from which water can be pumped out. A layer of 2-inch crushed rock should be placed over footing bearing subgrade soils, as required, to protect the soils from disturbance by construction traffic. This crushed rock base should be built to a few inches above groundwater level, but not less than 6 inches thick. The crush rock base should be compacted in 12-inch lifts to a non-yielding state with a vibratory mechanical compactor.

Runoff over Impervious Surfaces

Storm runoff over impervious surfaces, such as roofs, paved roadway, driveways and parking areas, should be collected by underground drain line systems connected to downspouts and by catch basins installed in paved roadways, driveways and parking areas. Stormwater thus collected should be tightlined to discharge into a storm sewer or suitable stormwater disposal facilities.

Building Footing Drains

A footing subdrain should be installed around the perimeter footing foundations of each townhome building. The subdrains should consist of a 4-inch-minimum-diameter, perforated, rigid, drain pipe, laid a few inches below bottom of the perimeter footings of the buildings. The trenches and the drain lines should have a sufficient gradient (0.5% minimum) to generate flow by gravity. The drain lines should be wrapped in a non-woven filter fabric sock and completely enclosed in clean washed gravel. The remaining trenches may be backfilled with clean onsite soils. Water collected by the perimeter footing subdrain systems should be tightlined, separately from the roof and surface

stormwater drain lines, to discharge into a storm sewer or suitable stormwater disposal facilities.

Surface Drainage

Water should not be allowed to stand in any areas where footings, on-grade slabs, or pavement is to be constructed. Finish ground surface should be graded to direct surface runoff away from the adjacent buildings. We recommend the finish ground be sloped at a gradient of 3 percent minimum for a distance of at least 10 feet away from buildings, except in the areas to be paved.

Cleanouts

Sufficient number of cleanouts at strategic locations should be provided for underground drain lines. The underground drain lines should be cleaned and maintained periodically to prevent clogging.

RISK EVALUATION STATEMENT

The subject site is underlain at shallow depth by an alluvium deposit of medium-dense, gravelly, cobbly sand. This deposit is of moderately-high shear strength and the site is nearly level. Therefore, the site should be quite stable. It is our opinion that if the recommendations in this report are fully implemented and observed during and following completion of construction, the areas disturbed by construction will be stabilized and will remain stable, and will not increase potential for soil movement. In our opinion, the risk for damages to the proposed development and from the development to adjacent properties due to soil movement should be minimal.

LIU & ASSOCIATES, INC.

LIMITATIONS

This report has been prepared for the specific application to this project for the exclusive use by Hanson Homes and its associates, representatives, consultants and contractors. We recommend that this report, in its entirety, be included in the project contract documents for the information of prospective contractors for their estimating and bidding purposes and for compliance with the recommendations in this report during construction. The conclusions and interpretations in this report, however, should not be construed as a warranty of the subsurface conditions. The scope of this study does not include services related to construction safety precautions and our recommendations are not intended to direct the contractor's methods, techniques, sequences or procedures, except as specifically described in this report for design considerations. All geotechnical construction work should be monitored and inspected by a geotechnical engineer during construction.

Our recommendations and conclusions are based on the geologic and soil conditions encountered in the test pits excavated on the site, and our experience and engineering judgment. The conclusions and recommendations are professional opinions derived in a manner consistent with the level of care and skill ordinarily exercised by other members of the profession currently practicing under similar conditions in this area. No warranty, expressed or implied, is made.

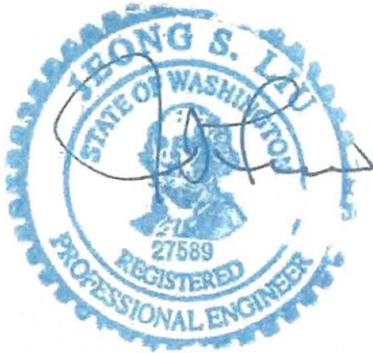
The actual subsurface conditions of the site may vary from those encountered by the test pits excavated on the site. The nature and extent of such variations may not become evident until construction starts. If variations appear then, we should be retained to re-

March 31, 2017
Main Street Townhomes
L&A Job No. 17-038
Page 20

evaluate the recommendations of this report, and to verify or modify them in writing prior to proceeding further with the construction of the proposed development of the site.

CLOSURE

We are pleased to be of service to you on this project. Please feel free to contact us if you have questions regarding this report or need further consultation.



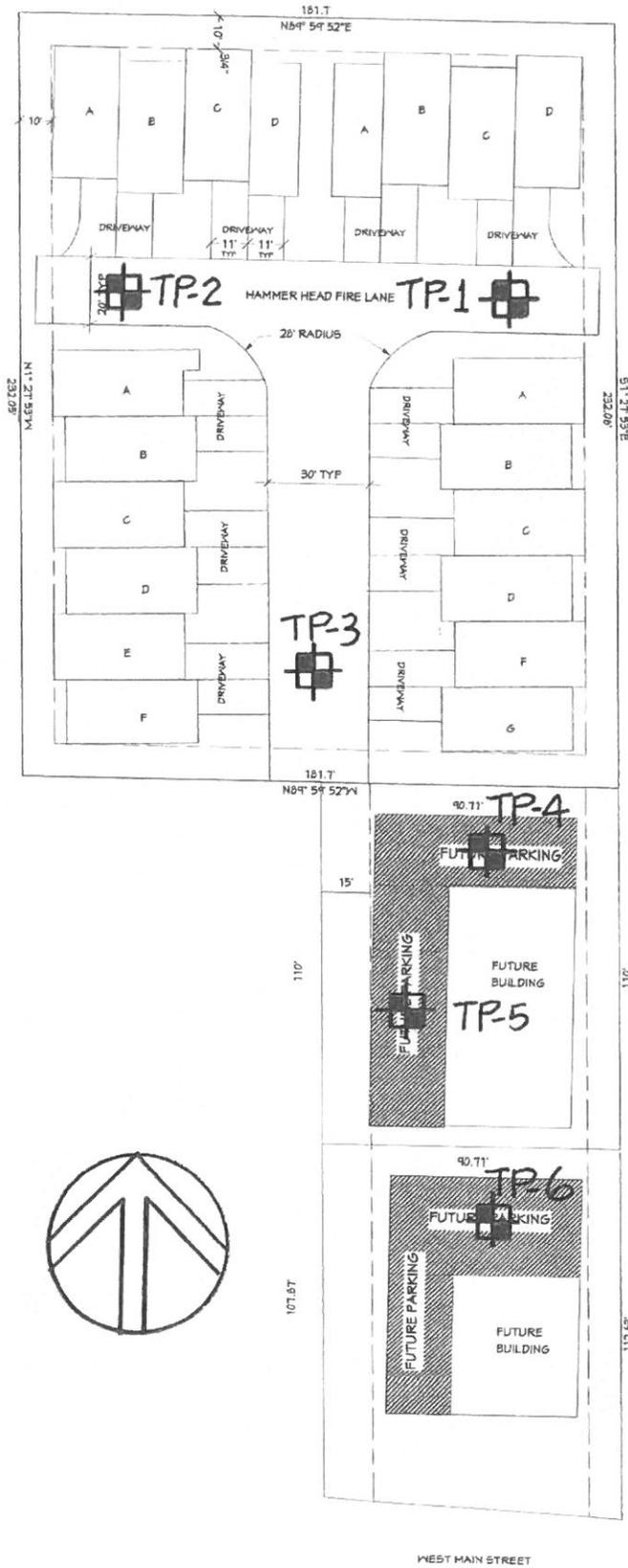
Yours very truly,
LIU & ASSOCIATES, INC.

A handwritten signature in blue ink, appearing to read "J. S. Liu".

J. S. (Julian) Liu, Ph.D., P.E.
Principal

Attached: Six Plates and Appendix

LIU & ASSOCIATES, INC.



LIU & ASSOCIATES, INC.

Geotechnical Engineering · Engineering Geology · Earth Science

**SITE AND EXPLORATION LOCATION PLAN
 MAIN STREET TOWNHOMES
 1237 W MAIN STREET
 MONROE, WASHINGTON**

JOB NO. 17-038 DATE 3/30/2017 PLATE 2

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			GROUP SYMBOL	GROUP NAME	
COARSE-GRAINED SOILS MORE THAN 50% RETAINED ON THE NO. 200 SIEVE	GRAVEL MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVEL	GW	WELL-GRADED GRAVEL, FINE TO COARSE GRAVEL	
		GRAVEL WITH FINES	GP	POORLY-GRADED GRAVEL	
		SAND MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	CLEAN SAND	SW	WELL-GRADED SAND, FINE TO COARSE SAND
			SAND WITH FINES	SP	POORLY-GRADED SAND
	FINE-GRAINED SOILS MORE THAN 50% PASSING ON THE NO. 200 SIEVE	SILT AND CLAY LIQUID LIMIT LESS THAN 50%	INORGANIC	ML	SILT
			ORGANIC	CL	CLAY
			ORGANIC	OL	ORGANIC SILT, ORGANIC CLAY
		SILTY AND CLAY LIQUID LIMIT 50% OR MORE	INORGANIC	MH	SILT OF HIGH PLASTICITY, ELASTIC SILT
ORGANIC			CH	CLAY OF HIGH PLASTICITY, FAT CLAY	
ORGANIC			OH	ORGANIC SILT, ORGANIC SILT	
HIGHLY ORGANIC SOILS			PT	PEAT AND OTHER HIGHLY ORGANIC SOILS	

NOTES:

1. FIELD CLASSIFICATION IS BASED ON VISUAL EXAMINATION OF SOIL IN GENERAL ACCORDANCE WITH ASTM D2488-83.
2. SOIL CLASSIFICATION USING LABORATORY TESTS IS BASED ON ASTM D2487-83.
3. DESCRIPTIONS OF SOIL DENSITY OR CONSISTENCY ARE BASED ON INTERPRETATION OF BLOW-COUNT DATA, VISUAL APPEARANCE OF SOILS, AND/OR TEST DATA.

SOIL MOISTURE MODIFIERS:

- DRY - ABSENCE OF MOISTURE, DUSTY, DRY TO THE TOUCH
- SLIGHTLY MOIST - TRACE MOISTURE, NOT DUSTY
- MOIST - DAMP, BUT NO VISIBLE WATER
- VERY MOIST - VERY DAMP, MOISTURE FELT TO THE TOUCH
- WET - VISIBLE FREE WATER OR SATURATED, USUALLY SOIL IS OBTAINED FROM BELOW WATER TABLE

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UNIFIED SOIL CLASSIFICATION SYSTEM

TEST PIT NO. 1

Logged By: JSL

Date: 3/22/2017

Ground El. ±

Depth ft.	USCS CLASS.	Soil Description	Sample No.	W %	Other Test
1	OL	Dark-brown, loose, organic, silty fine SAND, moist (TOPSOIL)			
2	SM	Light-brown, loose, silty fine SAND, moist			
3					
4	SM	Light-gray, medium-dense, silty fine sand, slightly-moist			
5					
6					
7	SW	Light-gray, medium-dense, gravelly, cobbly, fine to coarse sand, slightly-moist (ALLUVIUM DEPOSIT)			
8					
9					
10		Test pit terminated at 9.0 ft; groundwater not encountered,			

TEST PIT NO. 2

Logged By: JSL

Date: 3/22/2017

Ground El. ±

Depth ft.	USCS CLASS.	Soil Description	Sample No.	W %	Other Test
1	OL	Dark-brown, loose, organic, silty fine SAND, moist (TOPSOIL)			
2	SM	Light-brown, loose, silty fine SAND, moist			
3	SM	Light-gray, medium-dense, silty fine sand, slightly-moist			
4					
5					
6	SW	Light-gray, medium-dense, gravelly, cobbly, fine to coarse sand, slightly-moist (ALLUVIUM DEPOSIT)			
7					
8					
9		Test pit terminated at 8.0 ft; groundwater not encountered,			
10					

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TEST PIT LOGS
 MAIN STREET TOWNHOMES
 1237 W MAIN STREET
 MONROE, WASHINGTON

JOB NO. 17-143 DATE 3/22/2017 PLATE 4

TEST PIT NO. 3

Logged By: JSL

Date: 3/22/2017

Ground El. ±

Depth ft.	USCS CLASS.	Soil Description	Sample No.	W %	Other Test
1	OL	Dark-brown, loose, organic, silty fine SAND, moist (TOPSOIL)			
2	SM	Brown to light-brown, loose, silty fine SAND, moist			
3					
4					
5					
6	SM	Light-gray, medium-dense, silty fine sand, slightly-moist			
7	SW	Light-gray, medium-dense, gravelly, cobbly, fine to coarse sand, slightly-moist (ALLUVIUM DEPOSIT)			
8					
9					
10		Test pit terminated at 9.0 ft; groundwater not encountered,			

TEST PIT NO. 4

Logged By: JSL

Date: 3/22/2017

Ground El. ±

Depth ft.	USCS CLASS.	Soil Description	Sample No.	W %	Other Test
1	OL	Dark-brown, loose, organic, silty fine SAND, moist (TOPSOIL)			
2	SM	Brown to light-brown, loose, silty fine SAND, moist			
3					
4	SM	Light-gray, medium-dense, silty fine sand, slightly-moist			
5					
6	SW	Light-gray, medium-dense, gravelly, cobbly, fine to coarse sand, slightly-moist (ALLUVIUM DEPOSIT)			
7					
8					
9		Test pit terminated at 8.0 ft; groundwater not encountered,			
10					

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TEST PIT LOGS
 MAIN STREET TOWNHOMES
 1237 W MAIN STREET
 MONROE, WASHINGTON

JOB NO. 17-038 DATE 3/22/2017 PLATE 5

TEST PIT NO. 5

Logged By: JSL

Date: 3/22/2017

Ground El. ±

Depth ft.	USCS CLASS.	Soil Description	Sample No.	W %	Other Test
1	OL	Dark-brown, loose, organic, silty fine SAND, with concrete rubble, asphalt fragments, glass bottles, plastic sheets, metal parts, fuel cans, etc. mixed in, moist			
2					
3					
4					
5					
6					
7					
8					
9		Test pit terminated at 8.5 ft; groundwater not encountered,			
10					

TEST PIT NO. 6

Logged By: JSL

Date: 3/22/2017

Ground El. ±

Depth ft.	USCS CLASS.	Soil Description	Sample No.	W %	Other Test
1	OL	Dark-brown, loose, organic, silty fine SAND, moist (TOPSOIL)			
2	SM	Brown, loose, silty fine SAND, moist			
3	SM	Light-gray, medium-dense, silty fine sand, slightly-moist			
4					
5	SW	Light-gray, medium-dense, gravelly, cobbly, fine to coarse sand, slightly-moist (ALLUVIUM DEPOSIT)			
6					
7					
8		Test pit terminated at 8.0 ft; groundwater not encountered,			
9					
10					

LIU & ASSOCIATES, INC.

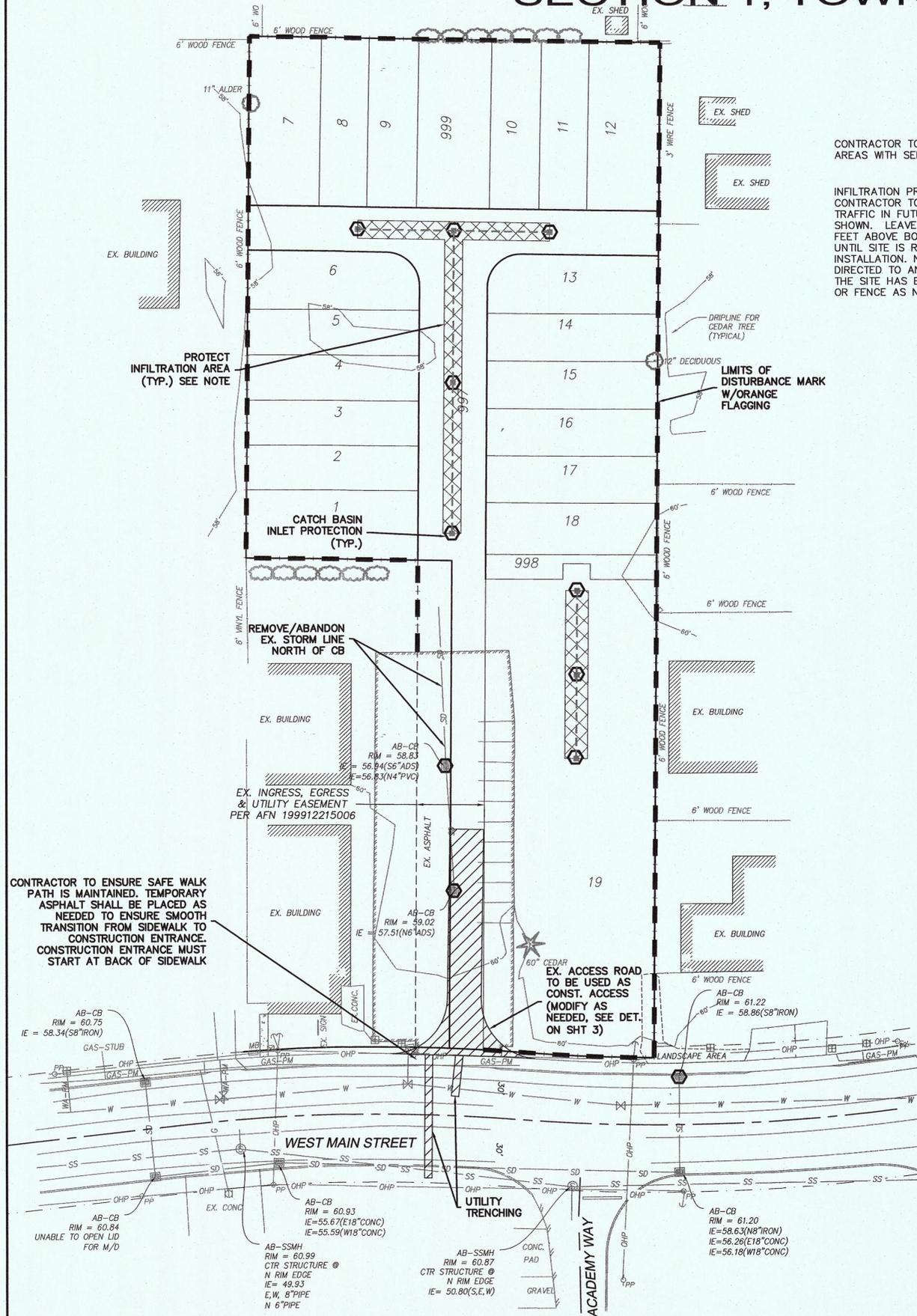
Geotechnical Engineering · Engineering Geology · Earth Science

TEST PIT LOGS
 MAIN STREET TOWNHOMES
 1237 W MAIN STREET
 MONROE, WASHINGTON

JOB NO. 17-038 DATE 3/22/2017 PLATE 6

MAIN BROOK TOWNHOMES

SECTION 1, TOWNSHIP 21N, RANGE 6E, W.M.



CONTRACTOR TO STABILIZE NEWLY DISTURBED AREAS WITH SEED AND MULCH.

INFILTRATION PROTECTION NOTE:
CONTRACTOR TO LIMIT HEAVY EQUIPMENT TRAFFIC IN FUTURE INFILTRATION AREAS SHOWN. LEAVE GROUND ELEV. A MIN OF 2 FEET ABOVE BOTTOM OF INFILTRATION TRENCH UNTIL SITE IS READY FOR FINAL INFILTRATION INSTALLATION. NO SURFACE RUNOFF SHALL BE DIRECTED TO ANY INFILTRATION SYSTEM UNTIL THE SITE HAS BEEN STABILIZED. FLAG AREA OR FENCE AS NEEDED.

CESCL NOTES:

- PROJECTS THAT DISTURB ONE OR MORE ACRES MUST HAVE SITE INSPECTIONS CONDUCTED BY A CERTIFIED EROSION AND SEDIMENT CONTROL LEAD (CESCL). BY THE INITIATION OF CONSTRUCTION, THE SWPPP MUST IDENTIFY THE CESCL OR INSPECTOR, WHO MUST BE PRESENT ON-SITE OR ON-CALL AT ALL TIMES.
- THE CESCL OR INSPECTOR MUST HAVE THE SKILLS TO ASSESS THE:
 - SITE CONDITIONS AND CONSTRUCTION ACTIVITIES THAT COULD IMPACT THE QUALITY OF STORMWATER.
 - EFFECTIVENESS OF EROSION AND SEDIMENT CONTROL MEASURES USED TO CONTROL THE QUALITY OF STORMWATER DISCHARGES.
- THE CESCL OR INSPECTOR MUST EXAMINE STORMWATER VISUALLY FOR THE PRESENCE OF SUSPENDED SEDIMENT, TURBIDITY, DISCOLORATION, AND OIL SHEEN. THEY MUST EVALUATE THE EFFECTIVENESS OF BMPs AND DETERMINE IF IT IS NECESSARY TO INSTALL, MAINTAIN, OR REPAIR BMPs TO IMPROVE THE QUALITY OF STORMWATER DISCHARGES.
- BASED ON THE RESULTS OF THE INSPECTION, CONSTRUCTION SITE OPERATORS MUST CORRECT THE PROBLEMS IDENTIFIED BY:
 - REVIEWING THE SWPPP FOR COMPLIANCE WITH THE 13 CONSTRUCTION SWPPP ELEMENTS AND MAKING APPROPRIATE REVISIONS WITHIN 7 DAYS OF THE INSPECTION.
 - IMMEDIATELY BEGINNING THE PROCESS OF FULLY IMPLEMENTING AND MAINTAINING APPROPRIATE SOURCE CONTROL AND/OR TREATMENT BMPs AS SOON AS POSSIBLE, ADDRESSING THE PROBLEMS NOT LATER THAN WITHIN 10 DAYS OF THE INSPECTION. IF INSTALLATION OF NECESSARY TREATMENT BMPs IS NOT FEASIBLE WITHIN 10 DAYS, THE CONSTRUCTION SITE OPERATOR MAY REQUEST AN EXTENSION WITHIN THE INITIAL 10-DAY RESPONSE PERIOD.
 - DOCUMENTING BMP IMPLEMENTATION AND MAINTENANCE IN THE SITE LOG BOOK (SITES LARGER THAN 1 ACRE).
- THE CESCL OR INSPECTOR MUST INSPECT ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES, ALL BMPs, AND ALL STORMWATER DISCHARGE POINTS AT LEAST ONCE EVERY CALENDAR WEEK AND WITHIN 24 HOURS OF ANY DISCHARGE FROM THE SITE. (FOR PURPOSES OF THIS CONDITION, INDIVIDUAL DISCHARGE EVENTS THAT LAST MORE THAN ONE DAY DO NOT REQUIRE DAILY INSPECTIONS. FOR EXAMPLE, IF A STORMWATER POND DISCHARGES CONTINUOUSLY OVER THE COURSE OF A WEEK, ONLY ONE INSPECTION IS REQUIRED THAT WEEK.) THE CESCL OR INSPECTOR MAY REDUCE THE INSPECTION FREQUENCY FOR TEMPORARILY STABILIZED, INACTIVE SITES TO ONCE EVERY CALENDAR MONTH.

CONSTRUCTION SEQUENCE:

- * CONTACT CITY OF MONROE, 360.794.7400 AND SCHEDULE PRECONSTRUCTION MEETING.
- CLEARING/CONSTRUCTION LIMITS SHALL BE STAKED & SILT FENCING INSTALLED.
- CONSTRUCT CONSTRUCTION ENTRANCE.
- CLEAR, GRUB AND REMOVE ALL VEGETATION WITHIN THE CLEARING LIMITS.
- CONSTRUCT DETENTION VAULT/SEDIMENT PONDS WITH OUTFALLS.
- ROUGH GRADE SITE WITH INTERCEPTOR SWALE DITCHES AS SHOWN ON THE EROSION CONTROL PLAN. ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES SHALL BE MAINTAINED, AND REPAIRED AS NEEDED TO ASSURE CONTINUED PERFORMANCE.
- INSTALL STORM WATER COLLECTION SYSTEM W/ SEDIMENT PROTECTION MEASURES.
- INSTALL SEWER AND WATER UTILITIES AND SERVICES.
- FINAL GRADE PAVEMENT AREA AND INSTALL GRAVEL BASE OR ATB.
- CONSTRUCT CURB, SIDEWALK, DRIVEWAYS AND PARKING PER PLAN. OBTAIN RIGHT-OF-WAY DISTURBANCE PERMIT PRIOR TO WORK WITHIN R.O.W.
- CONSTRUCT/COORDINATE POWER, GAS, TELEPHONE, CABLE SERVICES PER THE RESPECTIVE COMPANIES STANDARDS AND RELOCATION OF POWER VAULT.
- COMPLETE IRRIGATION AND LANDSCAPING.
- INSTALL PAVEMENT.
- CLEAN STORM DRAINAGE CONVEYANCE SYSTEM (DO NOT FLUSH), AFTER VEGETATION HAS BEEN ESTABLISHED.
- WHEN SITE IS STABLE, REMOVE REMAINING TEMPORARY ESC FACILITIES.
- POTHOLING OF THE EXISTING SEWER AND STORM FACILITIES IN MAIN STREET ARE REQUIRED PRIOR TO INSTALLATION OF SEWER TO VERIFY ASSUMED PIPE ELEVATIONS.

TESC NOTES:

- ALL TESC MEASURES MUST COMPLY WITH THE MONROE STANDARDS AND SPECIFICATIONS AND THE DEPARTMENT OF ECOLOGY 2005 STORMWATER MANUAL FOR THE PUGET SOUND BASIN.
- THE TESC SYSTEM SHALL BE INSTALLED AND INSPECTED BY THE PUBLIC WORKS INSPECTOR PRIOR TO ALL OTHER CONSTRUCTION.
- AS CONSTRUCTION PROGRESSES AND SEASONAL CONDITIONS DICTATE, THE EROSION CONTROL FACILITIES SHALL BE MAINTAINED AND/OR ALTERED AS REQUIRED BY THE CITY ENGINEER TO ENSURE CONTINUING EROSION/SEDIMENT CONTROL.
- THE PUBLIC RIGHT-OF-WAY SHALL BE KEPT CLEAN. TRACKING OF MUD AND DEBRIS FROM THE SITE WILL NOT BE ALLOWED. FAILURE TO COMPLY WITH THIS CONDITION WILL RESULT IN A STOP WORK ORDER PER MONROE MUNICIPAL CODE CHAPTER 12.32, CLEAN CONDITIONS OF PUBLIC RIGHT-OF-WAY.

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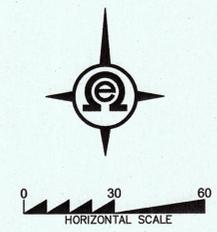
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- X - X - SILT FENCE
- - - - - LIMITS OF CLEARING
- CB INLET PROTECTION
- - - - - INTERCEPTOR SWALE
- ▨ ROCK CHECK DAM

GRADING QUANTITIES:

OUT = 300 C.Y.
FILL = 900 C.Y.

GRADING QUANTITIES CALCULATED USING AUTOCAD GRID SUBTRACTION METHOD COMPARING EXISTING GRADE TO FINISHED GRADE.



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Approved Approved as corrected
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Subject to field inspection and correction. No changes authorized unless approved by the City Engineer.

CITY OF MONROE ENGINEERING
By: [Signature] Date: 6/13/18

FILE NO.:

BY	DATE	DESCRIPTION
RAW	4/16/18	REV. PER 1ST CONST. REVIEW LETTER 44
RAW	5/23/18	REV. PER 2ND CONST. REVIEW LETTER 521
RAW	6/08/18	REV. PER 3RD CONST. REVIEW LETTER 66

SWPPP

2707 WETMORE AVE.
EVERETT, WA 98201
1 425.903.4852
f 425.259.1958

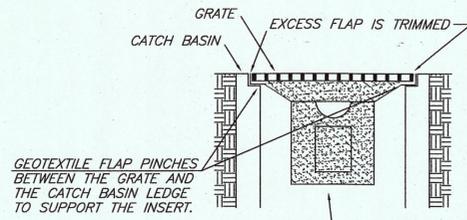
OMEGA ENGINEERING, INC.

MAIN BROOK TOWNHOMES
CITY OF MONROE, Washington
PORTION OF SECTION 1, TOWNSHIP 21 NORTH, RANGE 6 EAST, W.M.

PROD. NO. 17-0807 DSN. BY RAW
DATE: 6/8/18
SCALE: 1" = 30'
DRAWING NO. 2 OF 11

MAIN BROOK TOWNHOMES

SECTION 1, TOWNSHIP 21N, RANGE 6E, W.M.



SOCK TYPE INLET FILTER SPECS:
 DRAIN GUARD - OIL AND SEDIMENT MODEL
 DIMENSIONS: 48" x 36" x 18" HIGH
 WEIGHT (DRY): 1 LBS
 SEDIMENT CAPACITY: 40 LBS
 FLOW RATE
 FILTER: 500 GPM
 BYPASS: 700 GPM

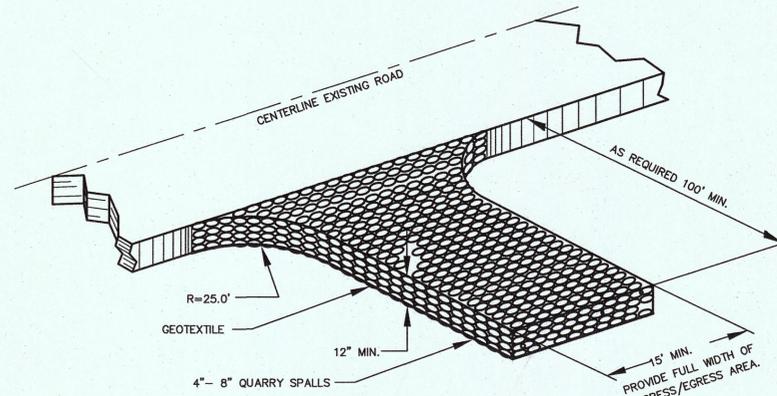
- INSTALLATION INSTRUCTIONS:
1. REMOVE GRATE.
 2. PLACE DRAIN GUARD IN CB.
 3. REPLACE GRATE.
 4. TRIM EXCESS FABRIC

- REMOVAL INSTRUCTIONS:
1. SECURE PULL STRAP AND REMOVE GRATE.
 2. REMOVE INSERT
 3. DISPOSE OF INSERT OR CLEAN AND REUSE.

NOTE: EQUIVALENT PRODUCT SHALL AT A MINIMUM HAVE A TREATMENT FLOW RATE OF 225 GPM.

INLET PROTECTION (PAVED AREAS)

NOT TO SCALE



GRAVEL CONSTRUCTION ENTRANCE
 (AT ENTRANCE OF PROJECT SITE)
 (SEE SHEET 2)

R#	DATE	DESCRIPTION	BY
1	6/8/18	REV. PER 3rd CONST. REVIEW LETTER 06	RAW
2	5/23/18	REV. PER 2nd CONST. REVIEW LETTER 5/21	RAW
3	4/18/18	REV. PER 1ST CONST. REVIEW LETTER 4/4	RAW



SWPPP
 DETAILS

2707 WETMORE AVE.
 EVERETT, WA 98201
 T 425.903.4862
 F 425.259.1958



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CITY OF MONROE ENGINEERING
 By: *[Signature]* Date: 6/13/18

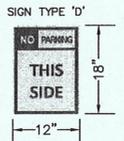
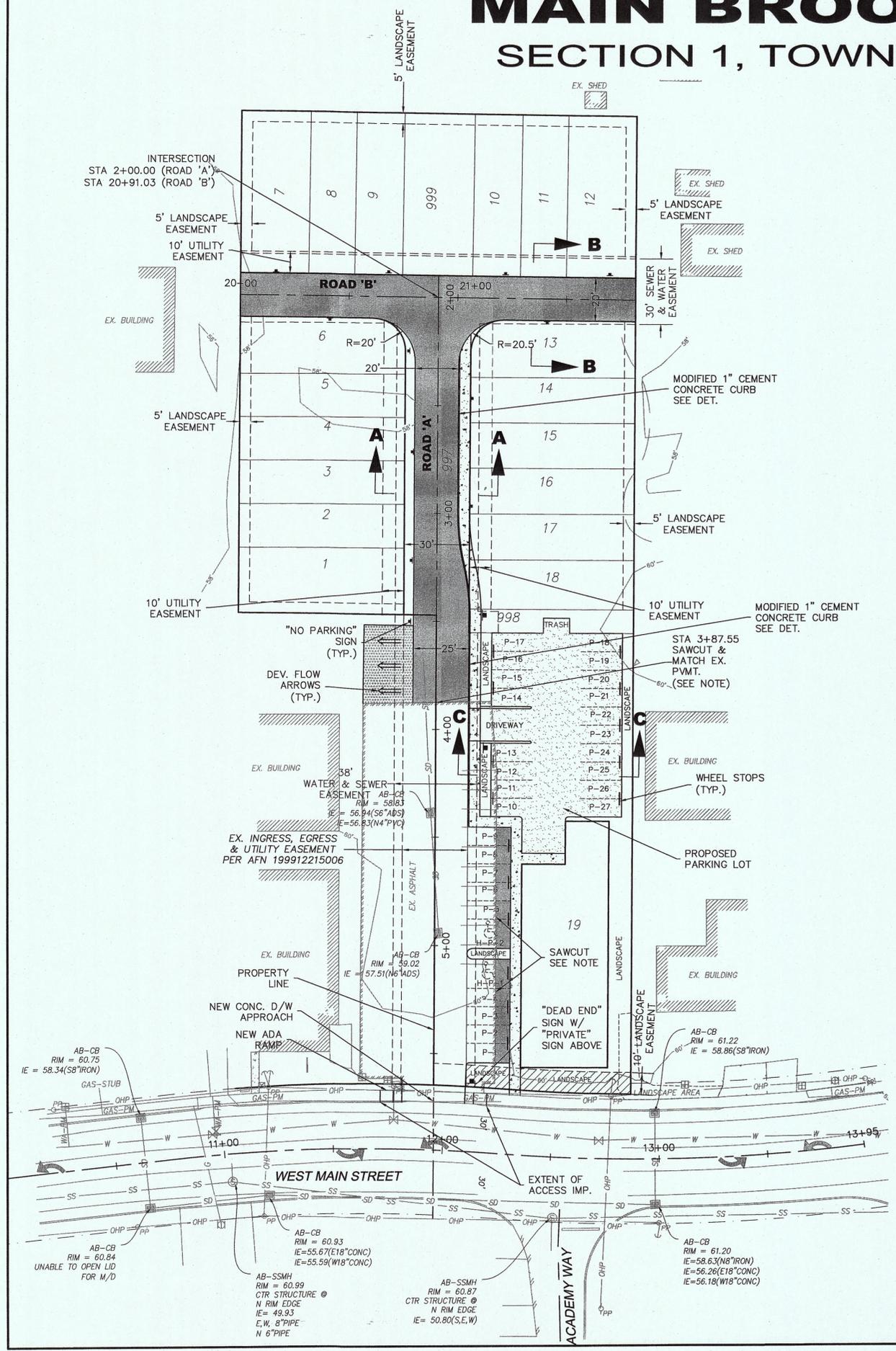
MAIN BROOK
 TOWNHOMES
 CITY OF MONROE, Washington
 PORTION OF SECTION 1, TOWNSHIP
 21 NORTH, RANGE 6 EAST, W.M.

PROJECT NO.	17-0807	DSN. BY:	RAW
DATE:	6/8/18		
SCALE:	1" = 30'		
DRAWING NO.	3	OF	11

FILE NO.:

MAIN BROOK TOWNHOMES

SECTION 1, TOWNSHIP 21N, RANGE 6E, W.M.

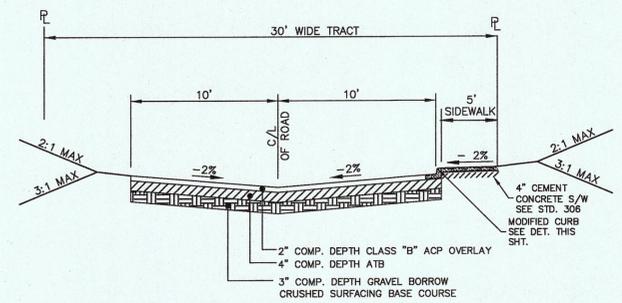


NO PARKING SIGN
N.T.S

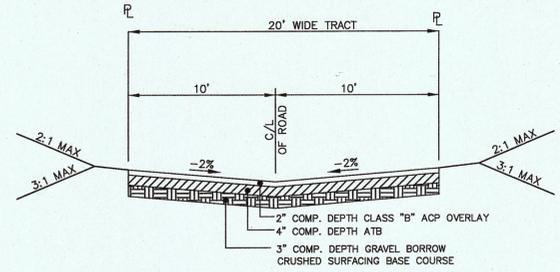
SIGNAGE NOTE:
CONTRACTOR TO SUBMIT SHOP DRAWINGS OR CUT SHEETS FOR ALL SIGNAGE TO CITY OF MONROE FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.

ALL "NO PARKING" SIGNS SHALL BE MOUNTED SO THE FACE OF THE SIGN IS PERPENDICULAR TO THE ROAD.

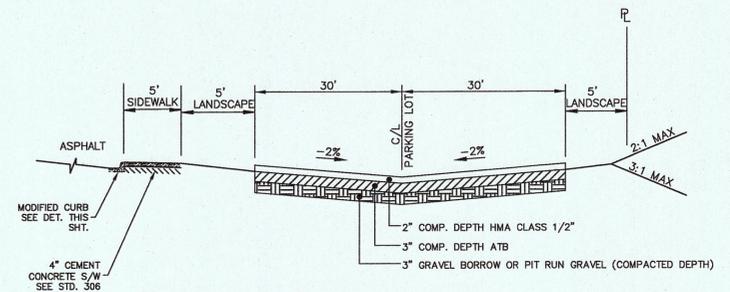
SEE SHEET 11 FOR SIGNAGE DETAILS



SECTION A - A
ROAD 'A' - TRACT 997



SECTION B-B
ROAD 'B' - TRACT 997

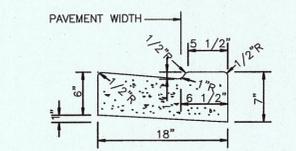


SECTION C - C
PARKING LOT

SAWCUT NOTE:
SAWCUT EXISTING PAVEMENT TO PROVIDE A CLEAN VERTICAL BUTT JOINT.

NOTES:

- MODIFIED 1-INCH VERTICAL CURB WILL BE REQUIRED.
- CONSTRUCTION OF CURB DETAILS SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION AS PUBLISHED BY THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION AND THE AMERICAN PUBLIC WORKS ASSOCIATION (WSDOT/APWA SPECIFICATIONS) UNLESS OTHERWISE MODIFIED HERE OR BELOW.
- ALL CONCRETE SHALL BE COMMERCIAL CLASS PER WSDOT/APWA SPECIFICATIONS.
- FORMS SHALL BE TRUE TO LINE AND GRADE AND SECURELY STAKED. STEEL FORMS ONLY SHALL BE USED ON TANGENT SECTIONS. WOOD FORMS MAY BE USED ON CURVED SECTIONS.
- FULL DEPTH EXPANSION JOINTS CONSISTING OF 3/8 INCH MINIMUM PREMOULDED JOINT MATERIAL SHALL BE PLACED ADJACENT TO CATCH BASINS, INLETS AND AT POINTS OF TANGENCY ON STREETS AND DRIVEWAY RETURNS. MAXIMUM SPACING SHALL BE 20 FEET.
- CONTRACTION JOINTS (DUMMY JOINTS) CONSISTING OF 3/8" MIN. X 2" OF PREMOULDED JOINT MATERIAL SHALL BE CONSTRUCTED AT INTERVALS OF 10 FEET.
- ALL JOINTS SHALL BE CLEAN AND EDGED.
- FINISH SHALL BE A LIGHT BROOM FINISH.
- FINISHED CURBS AND GUTTERS SHALL BE SPRAYED WITH A CLEAR CURING COMPOUND.
- SUBGRADE COMPACTION FOR CURBS AND GUTTERS SHALL MEET A MINIMUM 95% OF MAXIMUM DENSITY IN ACCORDANCE WITH SEC. 2-03.3(14) OF THE WSDOT/APWA SPECIFICATIONS.



MODIFIED 1" CEMENT CONCRETE VERTICAL CURB AND GUTTER

PAVE HATCHING LEGEND

- ASPHALT
- CONCRETE
- GRAVEL

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By: Date: 6/13/18

FILE NO.:

BY	DATE	DESCRIPTION
RAW	6/8/18	REV. PER 3RD CONST. REVIEW LETTER 06
RAW	6/22/18	REV. PER 2ND CONST. REVIEW LETTER 02
RAW	4/16/18	REV. PER 1ST CONST. REVIEW LETTER 44

ACCESS ROAD & GRADING

2707 WETMORE AVE.
EVERETT, WA 98201
1.425.903.4852
f.425.259.1986

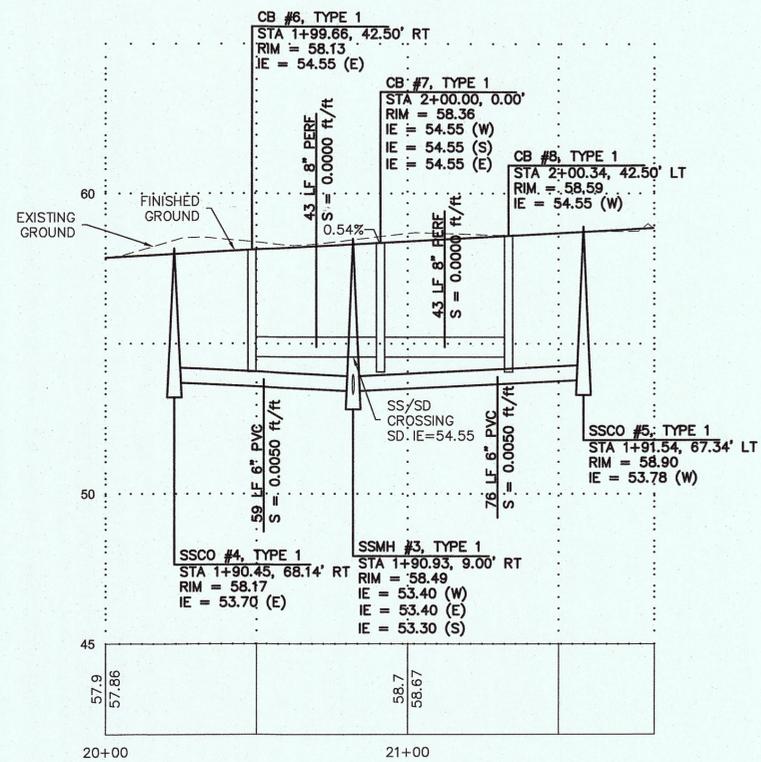
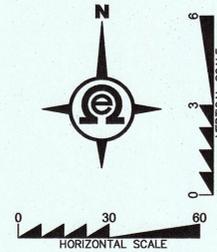
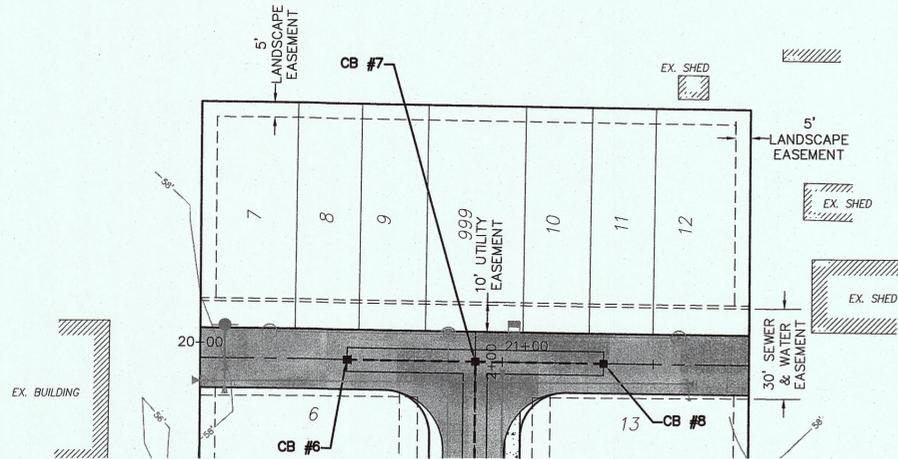
OMEGA ENGINEERING, INC.

MAIN BROOK TOWNHOMES
CITY OF MONROE, Washington
PORTION OF SECTION 1, TOWNSHIP 21 NORTH, RANGE 6 EAST, W.M.

PROJ. NO.: 17-0807
DATE: 6/8/18
SCALE: 1" = 30'
DRAWING NO.: 4 OF 11

MAIN BROOK TOWNHOMES

SECTION 1, TOWNSHIP 21N, RANGE 6E, W.M.



ROAD 'B' CENTERLINE PROFILE

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CITY OF MONROE ENGINEERING
By: [Signature] Date: 6/13/18

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ROAD 'B' PROFILE

2707 WETMORE AVE.
EVERETT, WA 98201
t 425.903.4852
f 425.259.1958



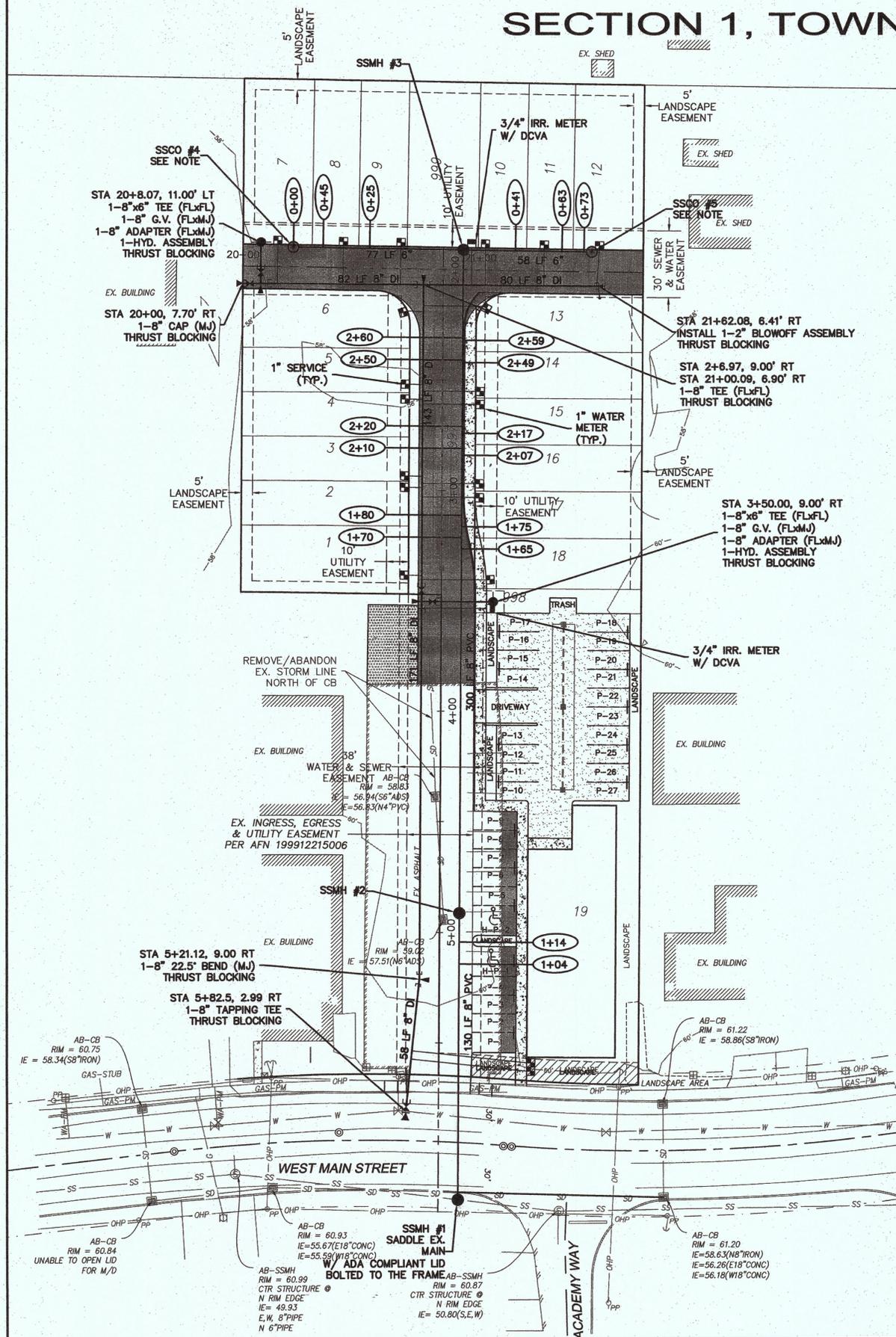
MAIN BROOK TOWNHOMES
CITY OF MONROE, Washington
PORTION OF SECTION 1, TOWNSHIP 21 NORTH, RANGE 6 EAST, W.M.

PROJ. NO. 17-0807	DSN. BY. RAW
DATE: 6/8/18	
SCALE: 1" = 30'	
DRAWING NO. 7	OF 11

FILE NO.:

MAIN BROOK TOWNHOMES

SECTION 1, TOWNSHIP 21N, RANGE 6E, W.M.



SSCO NOTE:
NEW 6" PVC MAIN SHALL TERM.
AT A CLEANOUT. THE SSCO LID
SHALL BE CAST IRON PER CITY
STANDARD PLAN SS2.

EX. UTILITY NOTE:
CONTRACTOR TO VERIFY WATER AND SEWER MAIN SIZE
AND TYPE PRIOR TO CONNECTION TO EXISTING PIPES.

FIRE SPRINKLER NOTE:
ANY RESIDENTIAL UNITS AND FUTURE DEVELOPMENT
MUST BE PROTECTED WITH FIRE SPRINKLERS AND SHALL
ALSO REQUIRE DCVA UNLESS A MULTIPURPOSE FIRE
SPRINKLER SYSTEM IS INSTALLED.

WATER SERVICE NOTES:
METER BOX SHALL BE OLD CASTLE CARSON 1220
PLASTIC METER BOX OR EQUAL IN NON TRAFFIC
AREAS. IN TRAFFIC AREAS METER BOX SHALL BE OLD
CASTLE CARSON 1527 WITH SOLID DUCTILE IRON LIDS
WITH NO READER WINDOW OR APPROVED EQUAL.

ANY WATER METER LOCATED IN DRIVEWAY AREA SHALL
BE INSTALLED WITH A TRAFFIC RATE LID.

IF STATIC PRESSURE IS 65 PSI OR GREATER, 1"
WATER METERS WITH 1" SERVICE LINES ARE
ACCEPTABLE TO PROVIDE REQUIRED SPRINKLER FLOW.

WATER LINE FROM METER TO HOUSE MUST BE A
MINIMUM OF 1-1/2" PIPE DIAMETER.

APPROVED SEWER PIPE MATERIAL:
PVC SEWER PIPE, ASTM D3034 SDR35
REINFORCED CONCRETE PIPE, ASTM C76
PLAIN CONCRETE SEWER PIPE, ASTM C14 CLASS 3
DUCTILE IRON SEWER PIPE, ANSI A 21.51 OR AWWA
C151 CLASS 52

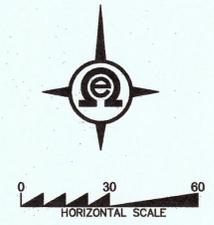
UTILITY CROSSING NOTE:
ALL PIPE CROSSINGS WITH LESS THAN 1' VERTICAL
SEPARATION SHALL USE SAND BED BETWEEN PIPES
AT CROSSING POINT.

SIDE SEWER NOTE:
ALL SIDE SEWERS MUST HAVE A MINIMUM 2% SLOPE
FROM THE BUILDING TO THE SS MAIN.

ALL SIDE SEWERS PASSING BENEATH 8"
PERFORATED PIPE SHOWN ON ROAD PROFILE SHALL
BE SLEEVED THROUGH INFILTRATION TRENCH WITH
SLEEVE EXTENDING A MINIMUM OF 5' ON EITHER
SIDE OF TRENCH.

ANY SIDE SEWERS CONNECTING TO 6" EAST-WEST
MAIN SHALL HAVE SWEEPING CONNECTIONS, NOT
RIGHT ANGLE TEES.

CALL 48 HOURS
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These plans have been reviewed for compliance with
the City of Monroe Public Works Design and
Construction Standards and required conditions
regarding water, sanitary sewer, storm water
management, and streets only. Prior to beginning
construction additional approvals may be required
from other city departments or state or federal
agencies.

Approved Approved as corrected
The granting of this approval does not presume to
give authority to violate or cancel the provisions of
any law, conditions or regulation regarding this
development activity or the performance of
construction.

Subject to field inspection and correction. No
changes authorized unless approved by the City
Engineer.

CITY OF MONROE ENGINEERING
By *James Hamilton* Date *6/26/18*

REVISED

FILE NO.:

BY	DATE	DESCRIPTION
RAW	6/25/18	REV. PER ROW PERMIT COMMENTS 6/25/18
RAW	6/25/18	REV. PER 3rd CONST. REVIEW LETTER 6/25
RAW	6/25/18	REV. PER 2nd CONST. REVIEW LETTER 6/25
RAW	6/25/18	REV. PER 1ST CONST. REVIEW LETTER 6/25



SEWER & WATER PLAN

2707 WETMORE AVE
EVERETT, WA 98201
t 425-903-4852
f 425-259-1958



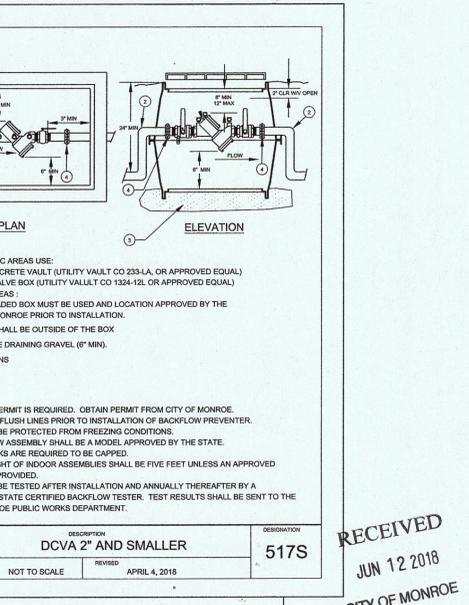
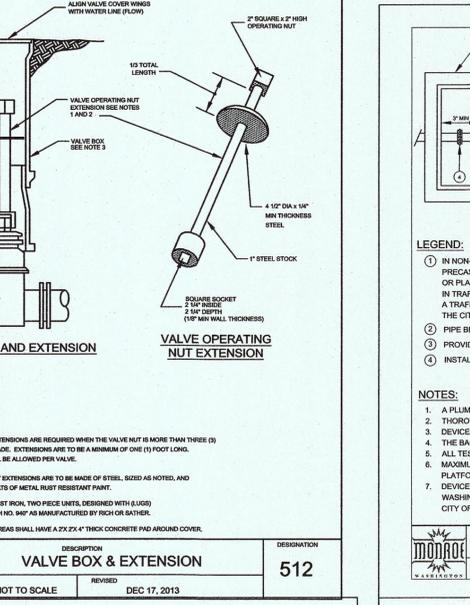
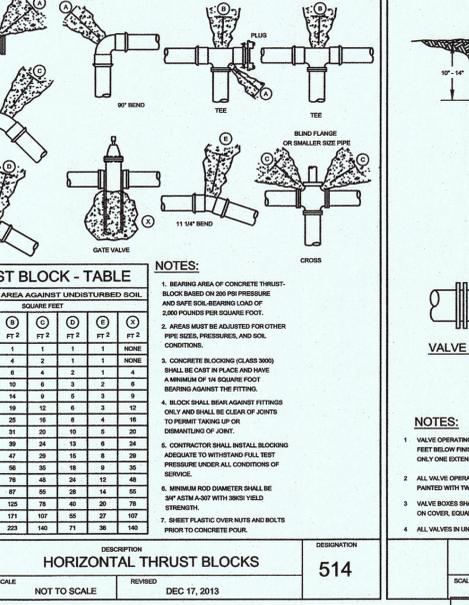
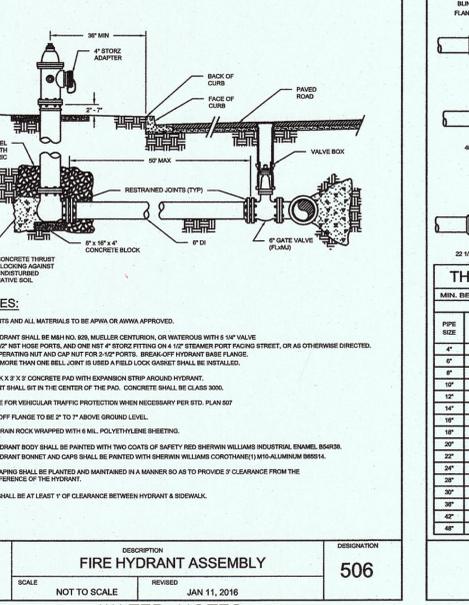
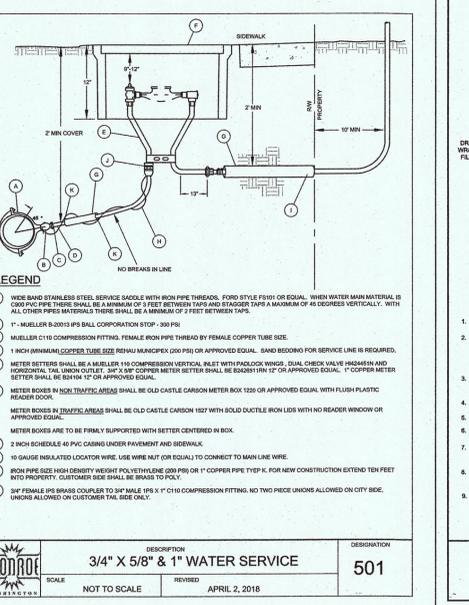
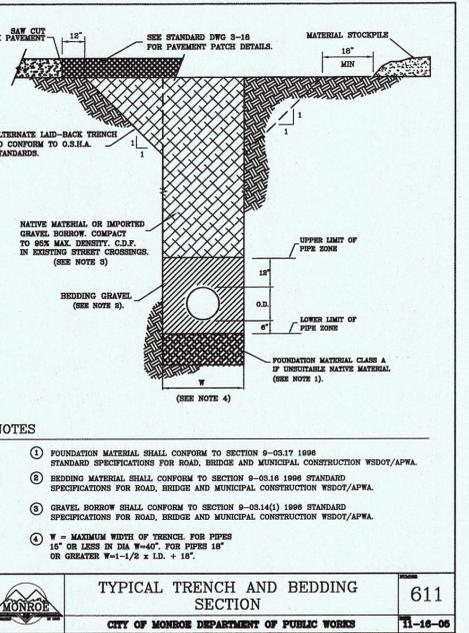
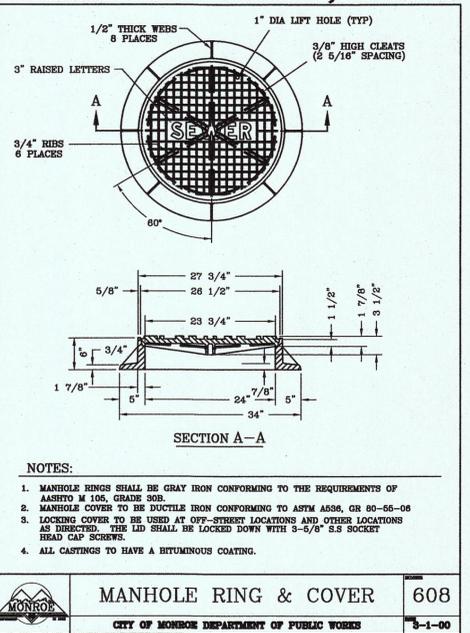
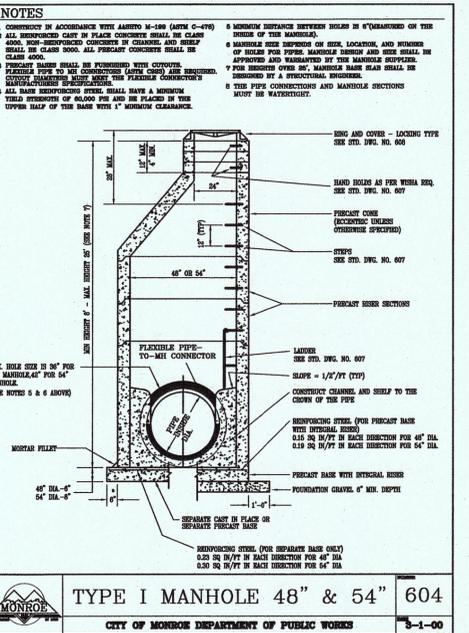
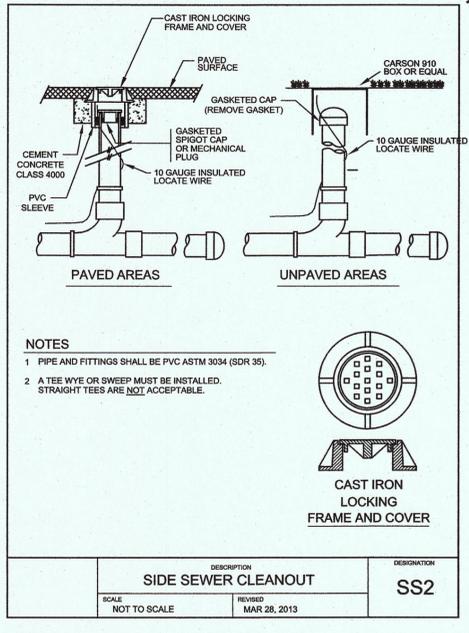
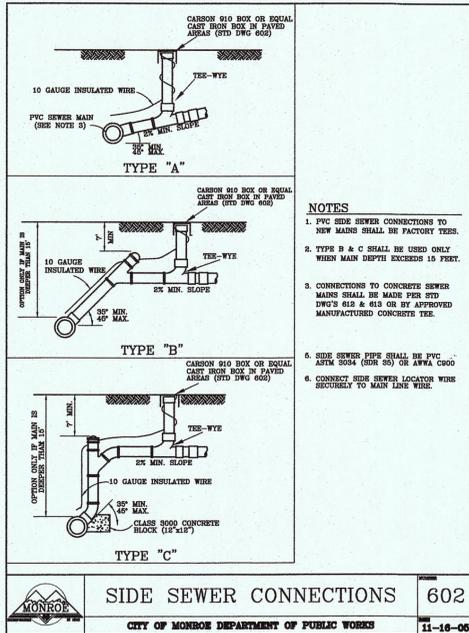
MAIN BROOK TOWNHOMES

CITY OF MONROE, Washington
PORTION OF SECTION 1, TOWNSHIP
21 NORTH, RANGE 6 EAST, W.M.

PROJ. NO.	17-0807	DRW. BY:	RAW
DATE:	6/25/18	SCALE:	1" = 30'
DRAWING NO.	9		11

MAIN BROOK TOWNHOMES

SECTION 1, TOWNSHIP 21N, RANGE 6E, W.M.

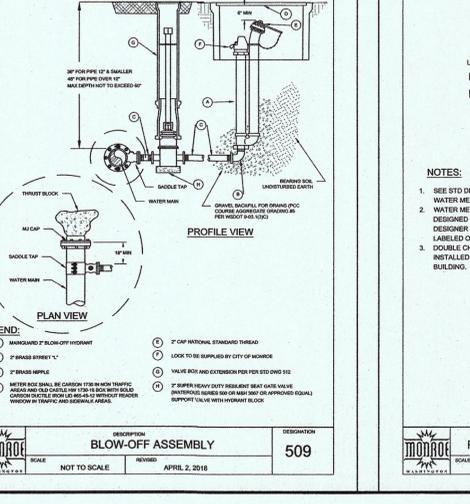
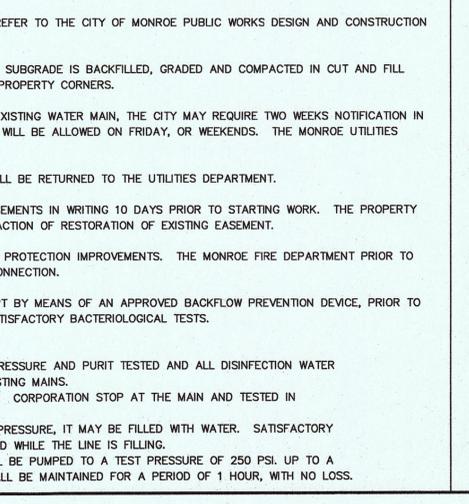


SEWER NOTES:

- ALL WORK AND MATERIALS SHALL CONFORM TO THE CITY OF MONROE STANDARDS AND SPECIFICATIONS.
- NO PART OF THE SANITARY SEWER SYSTEM SHALL BE COVERED, CONCEALED OR PUT INTO USE UNTIL IT HAS BEEN TESTED, INSPECTED AND APPROVED BY THE CITY INSPECTOR.
- APPROXIMATE LOCATIONS OF EXISTING UTILITIES HAVE BEEN OBTAINED FROM AVAILABLE RECORDS AND ARE SHOWN FOR CONVENIENCE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATIONS OF LOCATIONS AND TO AVOID DAMAGE TO ANY ADDITIONAL UTILITIES NOT SHOWN. IF CONFLICTS WITH EXISTING UTILITIES ARISE DURING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE PUBLIC WORKS INSPECTOR AND ANY CHANGES REQUIRED SHALL BE APPROVED BY THE CITY ENGINEER PRIOR TO COMMENCEMENT OF RELATED CONSTRUCTION OR THE PROJECT.
- ALL SEWER MAIN EXTENSIONS WITHIN THE PUBLIC RIGHT-OF-WAY OR IN EASEMENTS MUST BE STAKED BY SURVEY FOR LINE AND GRADE PRIOR TO STARTING CONSTRUCTION.
- SIDE SEWERS SHALL BE TESTED AT THE SAME TIME THE MAIN IS TESTED. PRESSURE TESTS SHALL BE AT 4.5 P.S.I. FOR 15 MIN.
- VIDEO REPORT REQUIREMENTS: TELEVISION INSPECTION IS REQUIRED ON ALL NEW SEWER MAINS. DEFICIENCIES NOTED BY THE TV CAMERA INSPECTION MUST BE CORRECTED TO THE SATISFACTION OF THE CITY ENGINEER.
- MARK ENDS OF SIDE SEWER STUBS W/ GREEN 2X4 LABELED "SEWER" AS PER LATEST SEWER SERVICE DETAIL.

WATER NOTES:

- FOR ALL DESIGN, CONSTRUCTION AND MATERIALS SPECIFICATIONS REFER TO THE CITY OF MONROE PUBLIC WORKS DESIGN AND CONSTRUCTION STANDARDS.
- THE WATER MAIN SHALL BE INSTALLED ONLY AFTER THE ROADWAY SUBGRADE IS BACKFILLED, GRADED AND COMPACTED IN CUT AND FILL AREAS. THE ROAD CENTERLINE SHALL BE STAKED ALONG WITH THE PROPERTY CORNERS.
- IF THE INITIAL TAP OR EXTENSION REQUIRES SHUTTING DOWN AN EXISTING WATER MAIN, THE CITY MAY REQUIRE TWO WEEKS NOTIFICATION IN ORDER TO PLACE A PUBLIC NOTICE IN THE LOCAL PAPER. NO TAPS WILL BE ALLOWED ON FRIDAY, OR WEEKENDS. THE MONROE UTILITIES DEPARTMENT SHALL OPERATE ALL WATER VALVES IN RIGHT-OF-WAY.
- ALL FITTINGS AND MATERIALS REMOVED FROM EXISTING MAINS SHALL BE RETURNED TO THE UTILITIES DEPARTMENT.
- THE CONTRACTOR SHALL NOTIFY VESTED OWNERS OF EXISTING EASEMENTS IN WRITING 10 DAYS PRIOR TO STARTING WORK. THE PROPERTY OWNER PRIOR TO CITY ACCEPTANCE MUST SIGN A LETTER OF SATISFACTION OF RESTORATION OF EXISTING EASEMENT.
- THE MONROE FIRE DEPARTMENT MUST APPROVE ALL ON-SITE FIRE PROTECTION IMPROVEMENTS. THE MONROE FIRE DEPARTMENT PRIOR TO INSTALLATION MUST APPROVE LOCATION OF THE FIRE DEPARTMENT CONNECTION.
- NO CONNECTION TO EXISTING MAIN LINES WILL BE ALLOWED, EXCEPT BY MEANS OF AN APPROVED BACKFLOW PREVENTION DEVICE, PRIOR TO SATISFACTORY FLUSHING, TESTING, DISINFECTION, AND RECEIPT OF SATISFACTORY BACTERIOLOGICAL TESTS.
- HYDROSTATIC PRESSURE TEST
 - ALL NEW MAINS SHALL BE BLOCKED AND SATISFACTORYLY PRESSURE AND PURIT TESTED AND ALL DISINFECTION WATER PROPERLY DISPOSED OF PRIOR TO CONNECTING TO THE EXISTING MAINS.
 - ALL SERVICES AND METER SETTERS SHALL BE OPEN AT THE CORPORATION STOP AT THE MAIN AND TESTED IN CONJUNCTION WITH THE MAIN TESTING.
 - AS SOON AS PIPE IS SECURED AGAINST MOVEMENT UNDER PRESSURE, IT MAY BE FILLED WITH WATER. SATISFACTORY PERFORMANCE OF AIR RELEASE VALVES SHOULD BE CHECKED WHILE THE LINE IS FILLING.
 - AFTER THE PIPE IS FILLED AND ALL AIR EXPULSED, IT SHALL BE PUMPED TO A TEST PRESSURE OF 250 PSI. UP TO A MAXIMUM TEST PRESSURE OF 300 PSI. THE PRESSURE SHALL BE MAINTAINED FOR A PERIOD OF 1 HOUR, WITH NO LOSS.



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Approved Approved as corrected

The granting of this approval does not presume to give authority to violate or cancel the provisions of any law, conditions or regulation regarding this development activity or the performance of construction.

Subject to field inspection and correction. No changes authorized unless approved by the City Engineer.

CITY OF MONROE ENGINEERING
By: [Signature] Date: 6/13/18

FILE NO.:

SEWER & WATER DETAILS

2707 WETMORE AVE.
EVERETT, WA 98201
t 425.903.4852
f 425.259.1958

OMEGA ENGINEERING, INC.

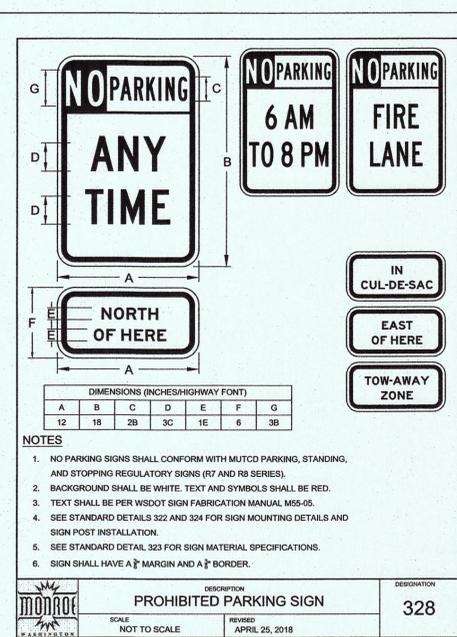
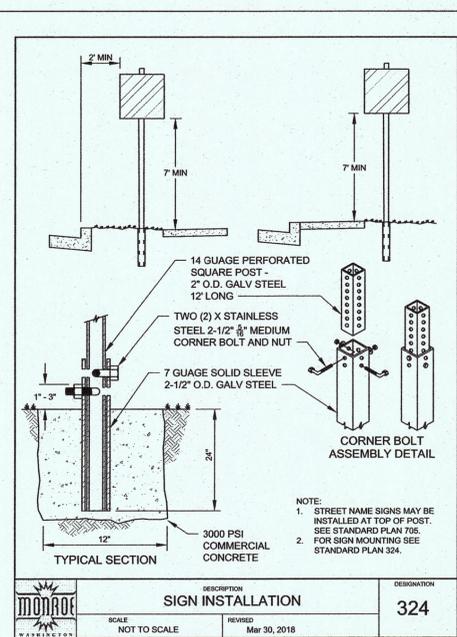
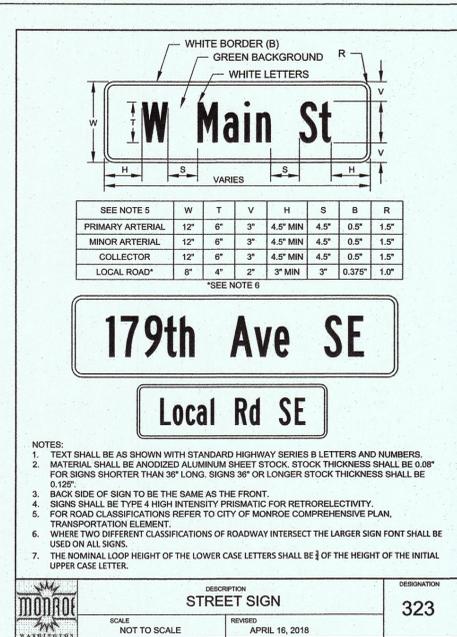
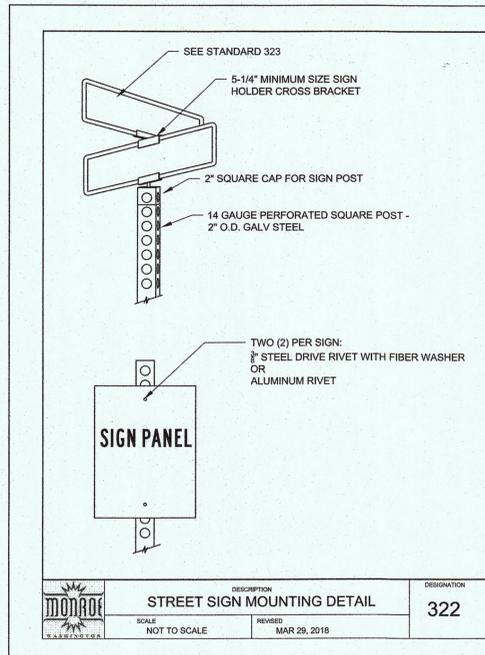
MAIN BROOK TOWNHOMES
CITY OF MONROE, Washington
PORTION OF SECTION 1, TOWNSHIP 21 NORTH, RANGE 6 EAST, W.M.

BY	DATE	DESCRIPTION
RAW <td>5/29/18 <td>REV. PER 2ND CONST. REVIEW LETTER 521</td> </td>	5/29/18 <td>REV. PER 2ND CONST. REVIEW LETTER 521</td>	REV. PER 2ND CONST. REVIEW LETTER 521
RAW <td>4/16/18 <td>REV. PER 1ST CONST. REVIEW LETTER 44</td> </td>	4/16/18 <td>REV. PER 1ST CONST. REVIEW LETTER 44</td>	REV. PER 1ST CONST. REVIEW LETTER 44
RAW <td>6/8/18 <td>REV. PER 3RD CONST. REVIEW LETTER 68</td> </td>	6/8/18 <td>REV. PER 3RD CONST. REVIEW LETTER 68</td>	REV. PER 3RD CONST. REVIEW LETTER 68

PROJ. NO. 17-0807 DSN. BY RAW
DATE: 6/8/18
SCALE: N.T.S.
DRAWING NO. 10 OF 11

MAIN BROOK TOWNHOMES

SECTION 1, TOWNSHIP 21N, RANGE 6E, W.M.



BY	DESCRIPTION	DATE	REV.
RAW	REV. PER 3RD CONST. REVIEW LETTER 068	8/08/18	1
RAW	REV. PER 2ND CONST. REVIEW LETTER 521	5/22/18	2
RAW	REV. PER 1ST CONST. REVIEW LETTER 44	4/16/18	3

SIGNAGE DETAILS

2707 WETMORE AVE.
EVERETT, WA 98201
t 425.903.4852
f 425.259.1986

OMEGA ENGINEERING, INC.

MAIN BROOK TOWNHOMES
CITY OF MONROE, Washington
PORTION OF SECTION 1, TOWNSHIP 21 NORTH, RANGE 6 EAST, W.M.

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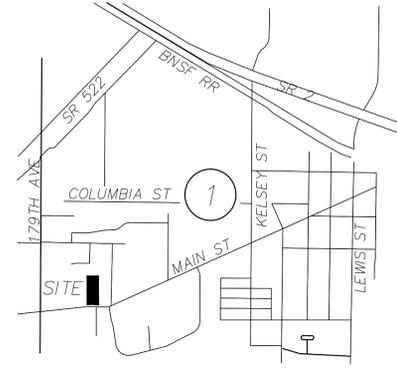
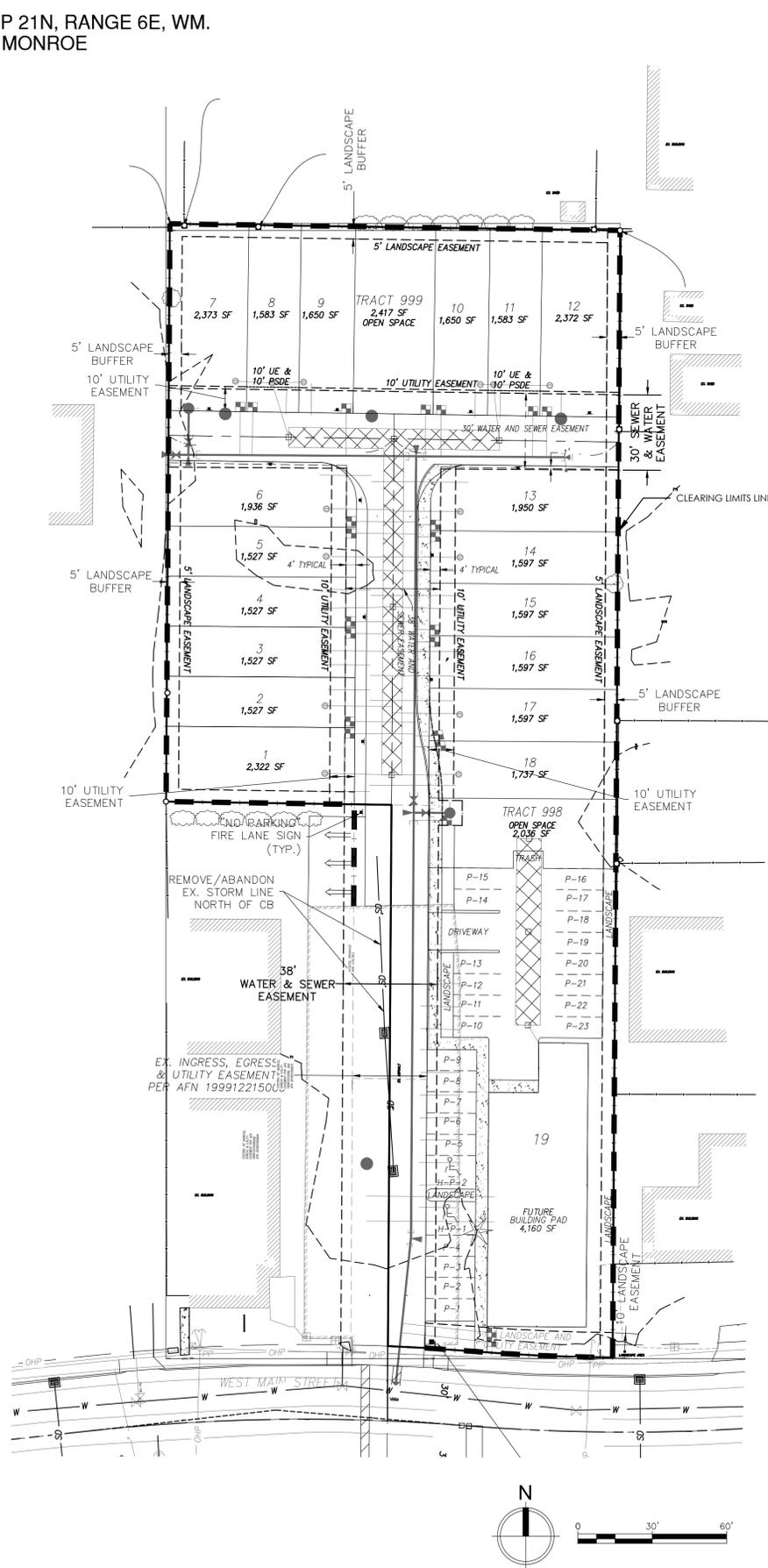
CITY OF MONROE ENGINEERING
By: [Signature] Date: 6/13/18

PROJ. NO.	17-0807	DSN. BY:	RAW
DATE:	6/8/18	SCALE:	N.T.S.
DRAWING NO.	11	OF	11

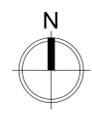
SECTION 1, TOWNSHIP 21N, RANGE 6E, WM.
CITY OF MONROE

GENERAL NOTES

- ALL LANDSCAPING SHALL BE INSTALLED IN ACCORDANCE WITH THE CITY OF MONROE'S REQUIREMENTS.
- THE GENERAL CONTRACTOR IS TO PROVIDE SUBGRADES 4" BELOW HARD SURFACES PLUS/MINUS .1 FOOT.
- ALL ROUGH GRADING SHALL BE POSITIVE, DRAINING AWAY FROM ALL STRUCTURES.
- ALL STONES LARGER THAN 1.5" DIAMETER SHALL BE REMOVED FROM THE GROWING MEDIUM.
- TOPSOIL SHALL BE PLACED AT A MINIMUM COMPACTED DEPTH OF 4" IN ALL LAWN AND BED AREAS. COMPACT ALL LAWN AREAS WITH A WATER FILLER LANDSCAPE ROLLER. FINISH GRADE IS TO BE FLUSH WITH TOP OF CURBS, SIDEWALKS AND HARD SURFACES.
- TOPSOIL SHALL BE TILLED INTO THE EXISTING SUBGRADE TO ELIMINATE SOIL INTERFACE PROBLEMS.
- TOPSOIL SHALL BE RED-E'S WINTER MIX OR APPROVED EQUAL.
- ALL BED AREAS TO RECEIVE 2" OF FINE GROUND FIR OR HEMLOCK BARK. COMPOSITION MULCHED ARE NOT AN ACCEPTABLE ALTERNATIVE.
- TREES AND SHRUBS ARE TO BE PLANTED AT A DEPTH 3/4" HIGHER THAN THE LEVEL THAT THEY WERE GROWN IN THE NURSERY.
- STREET TREES ARE TO BE FIELD LOCATED BY CITY OF MONROE PARKS DEPARTMENT REPRESENTATIVE.
- BARK MULCH IS NOT TO BE PLACED ABOVE THE ROOT CROWN.
- ALL PLANTS SHALL AT LEAST CONFORM TO THE MINIMUM STANDARD ESTABLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
- LAWN AREAS ARE TO BE HYDROSEEDED WITH VAN DEN AKKER'S EMERALD VELVET MIX PER MANUFACTURER'S SPECIFICATIONS, OR APPROVED EQUAL. REMOVE ALL STONES LARGER THAN 1" FROM LAWN AREAS.
- SUBSTITUTIONS ARE STRONGLY DISCOURAGED. IF PLANT AVAILABILITY IS A PROBLEM, CONTACT THE LANDSCAPE ARCHITECT FOR SOURCES OR ACCEPTABLE ALTERNATIVES.
- IF THE SITE WORK IS DIFFERENT THAN SHOWN ON THE LANDSCAPE PLAN, OR POOR SOILS AND DEBRIS ARE DISCOVERED, REQUIRING CHANGES TO THE LANDSCAPE PLAN, CONTACT THE LANDSCAPE ARCHITECT FOR INSTRUCTION.
- THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE LANDSCAPE DURING INSTALLATION, UNTIL FINAL ACCEPTANCE BY THE OWNER'S REPRESENTATIVE.
- THE LANDSCAPE CONTRACTOR SHALL WARRANTY ALL MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR, FROM THE TIME OF FINAL ACCEPTANCE.
- DURING THE WARRANTY PERIOD, THE LANDSCAPE CONTRACTOR WILL NOT BE RESPONSIBLE FOR PLANT DEATH CAUSED BY UNUSUAL CLIMATIC CONDITIONS, VANDALISM, THEFT, FIRE, OR POOR MAINTENANCE PRACTICES. THE LANDSCAPE ARCHITECT SHALL HAVE SOLE AUTHORITY TO DETERMINE THE CAUSE OF DEATH.
- LANDSCAPING SHALL BE PLANTED AND MAINTAINED IN A MANNER SO AS TO PROVIDE A 3' CLEAR SPACE AROUND THE CIRCUMFERENCE OF FIRE HYDRANTS.



VICINITY MAP
NTS



ORIGIN
DESIGN GROUP

1031 185TH AVE NE
SNOHOMISH, WA 98290
TEL: 425.346.1905



STATE OF WASHINGTON
LICENSED
LANDSCAPE ARCHITECT
KRISTAL LOWE
LICENCE NO. 1206

REVISIONS

#	DESCRIPTION	DATE
1	LANDSCAPE EASEMENT	11-10-17
2	SITE PLAN UPDATE	1-9-18
3	IRRIGATION PLAN	3-6-18
4	CITY COMMENTS	4-17-18
5	TRACT 998 CHANGES	3-21-19

MAINBROOK TOWNHOMES

DRAWING TITLE:
LANDSCAPE PLAN

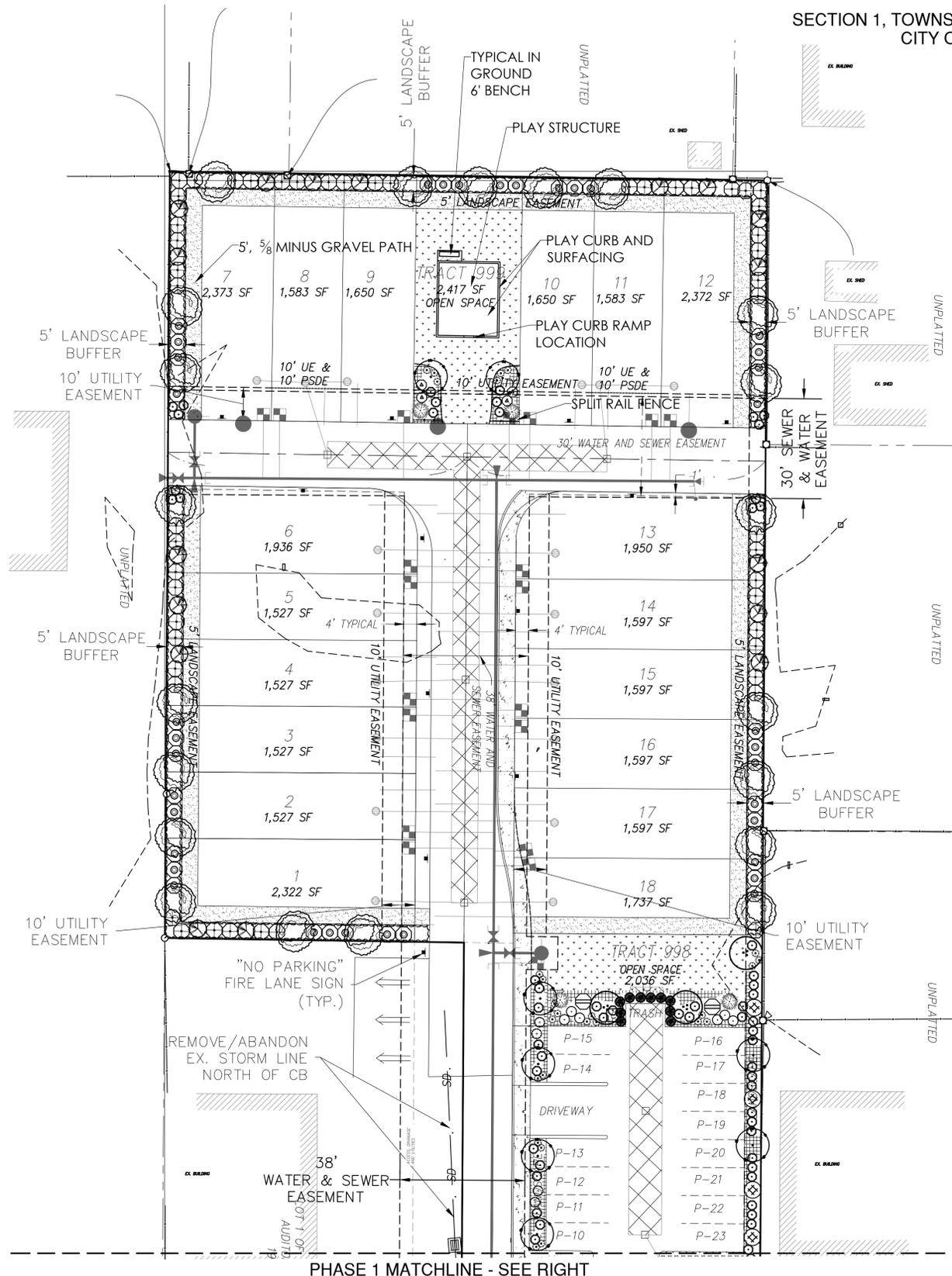
APPLICANT:
HANSON HOMES
P.O. BOX 2289
SNOHOMISH, WA 98291
CONTACT: RICK HANSON
2011HANSONHOMES@GMAIL.COM
(425) 328-5202

DRAWING INFORMATION
ODG PROJECT #: 17-165
DRAWN BY: KL
CHECKED BY: KL

DATE:
SEPTEMBER 22, 2017

SHEET NO:
L-1
OF 6

SECTION 1, TOWNSHIP 21N, RANGE 6E, WM.
CITY OF MONROE



LANDSCAPE PLANTING SCHEDULE

EVERGREEN TREES		SYMBOL	QTY	BOTANICAL / COMMON NAME	SIZE	CONDITION
⊗	17	<i>Chamaecyparis nootkatensis</i> Pendula / WEEPING ALASKA CEDAR	6' MIN. HT.	B&B., SPACING AS SHOWN		
●	10	<i>Thuja occidentalis</i> 'Emerald Green' / EMERALD GREEN ARBORVITAE	6' MIN. HT.	B&B., SPACING AS SHOWN		
⊗	3	<i>Thuja plicata</i> 'Excelsa' / EXCELSA WESTERN RED CEDAR	6' MIN. HT.	B&B., SPACING AS SHOWN		

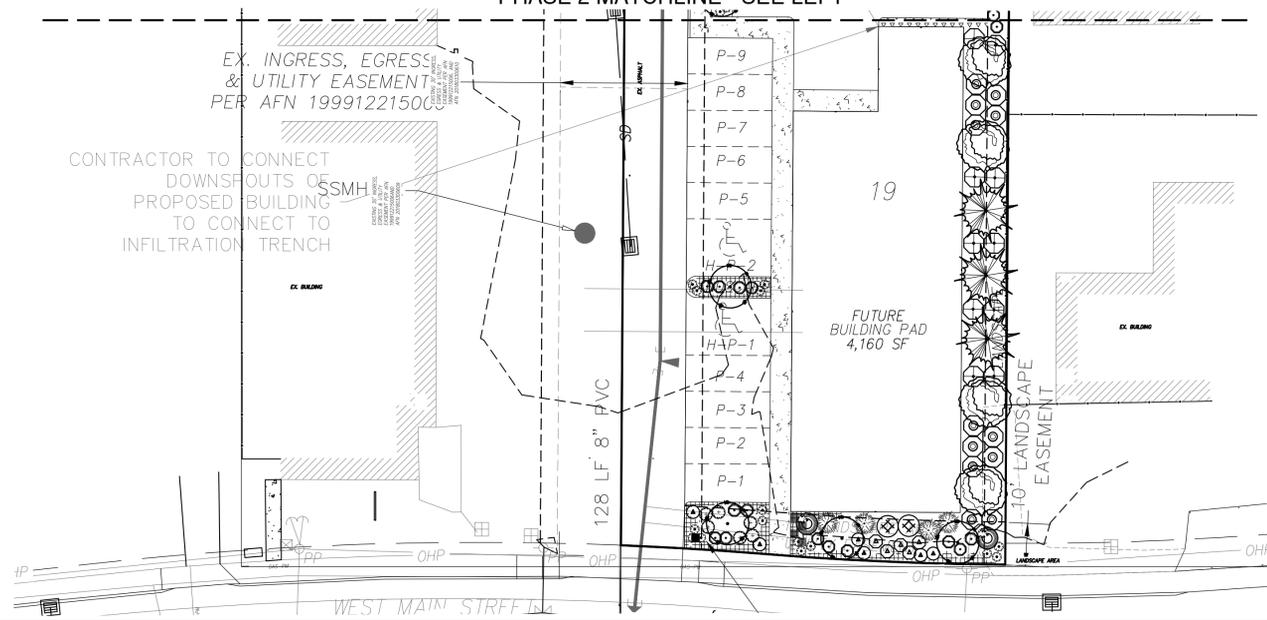
DECIDUOUS TREES		SYMBOL	QTY	BOTANICAL / COMMON NAME	SIZE	CONDITION
⊗	25	<i>Acer rubrum</i> 'Bowhall' / BOWHALL RED MAPLE	2" CAL.	B&B., 20' O.C. BRANCHED @ 8' HT		
⊗	3	<i>Amelanchier grandiflora</i> 'Autumn Brilliance' / SERVICEBERRY	1 3/4" CAL.	B&B., SPACING AS SHOWN		
⊗	12	<i>Pyrus calleryana</i> 'Capital' / CAPITAL PEAR	1.5" CAL.	B&B., SPACING AS SHOWN		

SHRUBS		SYMBOL	QTY	BOTANICAL / COMMON NAME	SIZE	CONDITION
⊗	41	<i>Berberis thunbergii</i> var. <i>atropurpurea</i> 'Crimson Pygmy' / PYGMY BARBERRY	2 GAL. MIN.	CON. GRWN. 3' O.C.		
⊗	6	<i>Cornus alba</i> 'Elegantissima' / VARIEGATED RED TWIG DOGWOOD	2 GAL. MIN.	CON. GRWN. 5' O.C.		
⊗	2	<i>Ilex crenata</i> / JAPANESE HOLLY	21" MIN. HT.	CON. GRWN. 4' O.C.		
⊗	2	<i>Hydrangea quercifolia</i> 'Snow Queen' / OAKLEAF HYDRANGEA	18" MIN. HT.	CON. GRWN. 5' O.C.		
⊗	6	<i>Lavandula angustifolia</i> 'Munstead' / MUNSTEAD LAVENDER	2 GAL. MIN.	CON. GRWN. 3' O.C.		
⊗	8	<i>Miscanthus sinensis</i> 'Morning Light' / SILVER MAIDEN GRASS	18" MIN. HT.	CON. GRWN. 5' O.C.		
⊗	73	<i>Nandina domestica</i> 'Gulf Stream' / DWARF HEAVENLY BAMBOO	18" MIN. HT.	CON. GRWN. 3' O.C.		
⊗	60	<i>Pieris</i> 'Forest Flame' / MOUNTAIN PIERIS	21" MIN. HT.	CON. GRWN. 5' O.C.		
⊗	10	<i>Pinus mugo</i> 'Mops' / MOPS MUGO PINE	18" MIN. HT.	CON. GRWN. 4' O.C.		
⊗	49	<i>Prunus laurocerasus</i> 'Otto Luyken' / DWARF ENGLISH LAUREL	21" MIN. HT.	CON. GRWN. 4' O.C.		
⊗	6	<i>Spiraea x bumalda</i> 'Goldflame' / GOLDFLAME SPIREA	2 GAL. MIN.	CON. GRWN. 3' O.C.		
⊗	9	<i>Viburnum davidii</i> 'David's' / DAVID'S VIBURNUM	21" MIN. HT.	CON. GRWN. 5' O.C.		

GROUND COVER		SYMBOL	QTY	BOTANICAL / COMMON NAME	SIZE	CONDITION
⊗	*	<i>Arctostaphylos uva-ursi</i> / KINNIKINICK	4" POTS	CON. GRWN., 12" O.C.		
⊗	*	<i>Gaultheria shallon</i> / SALAL	1 GAL. MIN.	CON. GRWN. 12" O.C.		
⊗	*	<i>Nassella tenuissima</i> / MEXICAN FEATHER GRASS	1 GALLON	CON. GRWN., 24" O.C.		
⊗	*	HYDROSEED LAWN				

* CONTRACTOR TO CALCULATE QUANTITIES TO PROVIDE FULL COVERAGE

PHASE 2 MATCHLINE - SEE LEFT



NOTE:
STREET TREES, PLANTER STRIP AND LANDSCAPE BUFFER TRACTS ADJACENT LOTS SHALL BE MAINTAINED BY THE HOMEOWNER. MAINTENANCE RESPONSIBILITIES FOR ALL LANDSCAPE AND IRRIGATION IMPROVEMENTS FALLS UPON THE HOA. INSTALLATION OF LANDSCAPE BUFFER SHALL OCCUR AFTER CONSTRUCTION OF BUILDINGS.
HYDROSEEDING APPLICATION WILL ONLY BE ALLOWED BETWEEN MARCH 1 AND OCTOBER 15.
SIX-INCH PROTECTIVE CURBS OR WHEEL STOP TO PROTECT LANDSCAPED AREAS SHALL BE PROVIDED.



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STATE OF WASHINGTON
LICENSED
LANDSCAPE ARCHITECT
KRISTAL LOWE
LICENCE NO. 1206

#	DESCRIPTION	DATE
1	LANDSCAPE EASEMENT	11-10-17
2	SITE PLAN UPDATE	1-9-18
3	IRRIGATION PLAN	3-6-18
4	CITY COMMENTS	4-17-18
5	TRACT 998 CHANGES	3-21-19

MAINBROOK TOWNHOMES

DRAWING TITLE:
LANDSCAPE PLAN

APPLICANT:
HANSON HOMES
P.O. BOX 2289
SNOHOMISH, WA 98291
CONTACT: RICK HANSON
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DRAWING INFORMATION
ODG PROJECT #: 17-165
DRAWN BY: KL
CHECKED BY: KL

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SHEET NO:
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OF 6

SECTION 1, TOWNSHIP 21N, RANGE 6E, WM.
CITY OF MONROE



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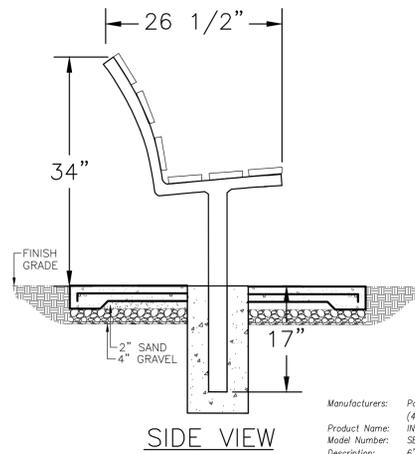
STATE OF WASHINGTON
LICENSED
LANDSCAPE ARCHITECT
Krystal Lowe
KRISTAL LOWE
LICENCE NO. 1206

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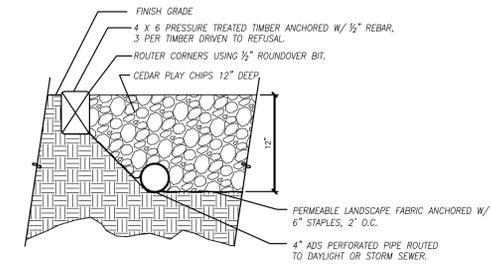
TIMBER PLAYSYSTEM
PRODUCT CODE: PE-7875
SAFE-USE AREA: 18' X 22'
PACIFIC OUTDOOR PRODUCTS
1 (425) 432-6000
OR EQUIVALENT

1
3 PLAY STRUCTURE

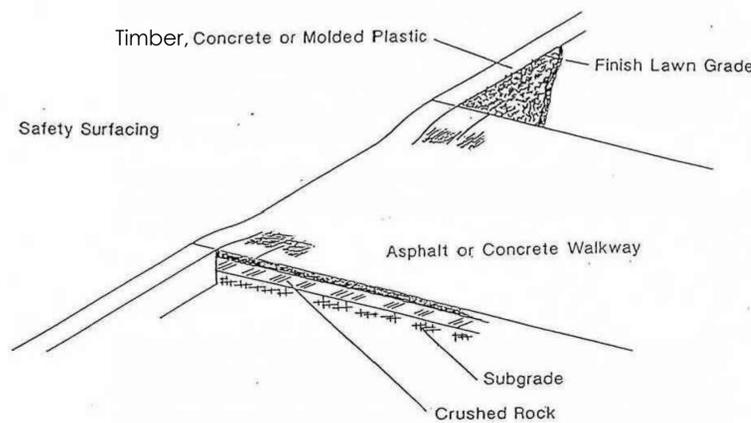


Manufacturers: Pacific Outdoor Products
(425) 432-6000
Product Name: IN-GROUND BENCH
Model Number: SE-5165
Description: 6" (1.9M), RECYCLED PLASTIC
Quantity: 1
OR EQUAL

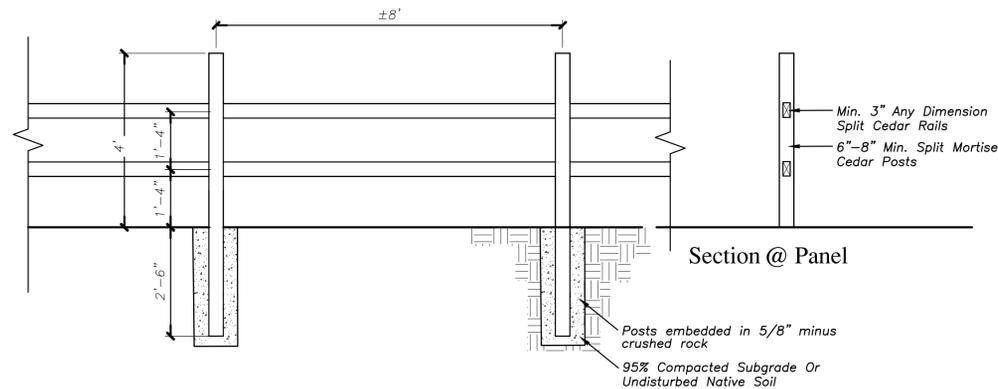
2
3 BENCH



3
3 PLAY SURFACING OR EQUIVALENT
SCALE: NTS



4
3 PLAYCURB RAMP



5
3 4 FOOT, 2 RAIL FENCE
SCALE: NTS

MAINBROOK TOWNHOMES

DRAWING TITLE:
LANDSCAPE PLAN

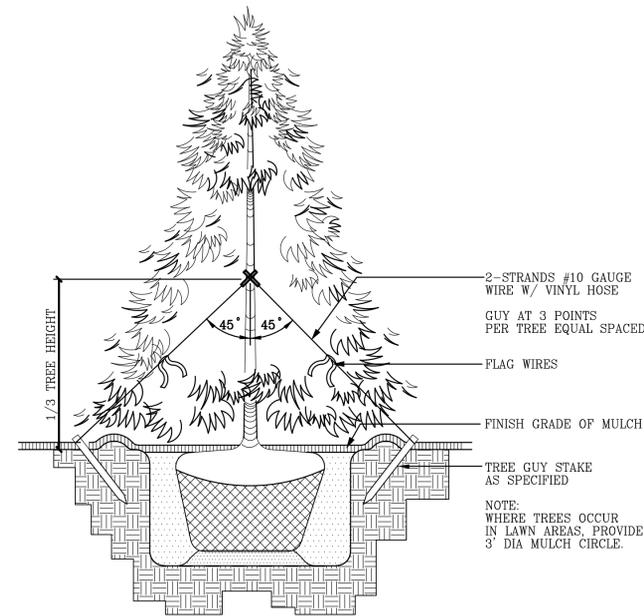
APPLICANT:
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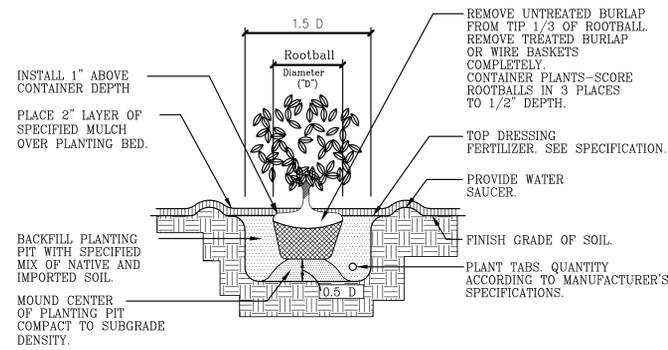
DATE:
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SHEET NO:
L-3
OF 6

SECTION 1, TOWNSHIP 21N, RANGE 6E, WM.
CITY OF MONROE



1 TREE GUYING
4 SCALE: NTS



NOTE:
DETAIL APPLIES TO TREES, SHRUBS AND GROUNDCOVER PLANTINGS.

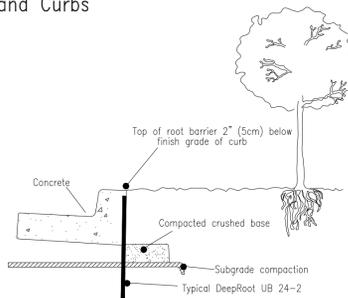
2 SHRUB PLANTING
4 SCALE: NTS

Linear Application of DeepRoot Tree Root Barriers at Time of Installing Concrete Sidewalks and Curbs

TYPICAL SECTION OF CURB AND GUTTER WITH DEEPROOT TREE ROOT BARRIER INSET INTO CONCRETE. BARRIER INSTALLED IN A TRENCH IN SUBGRADE WHICH IS THEN COMPACTED. BARRIER IS SET SO THAT TOP EDGE WILL BE 2" (5CM) BELOW FINISH GRADE OF CURB, AND SET FLUSH WITH EDGE OF CURB. BARRIER RIBS FACE TOWARD TREE ROOTS.

INSTALLATION SEQUENCE:

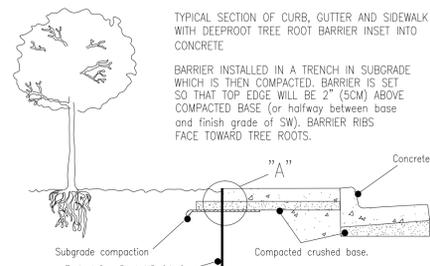
1. Prepare base and subgrade
2. Trench to appropriate depth for installation of root barrier so that top of barrier is 2" (5cm) below finish grade of top of curb.
3. Place root barrier in trench, vertical ribs must face toward tree roots.
4. Backfill and compact to requirements.
5. Place form material against barrier (it may be nailed from the outside of the form)



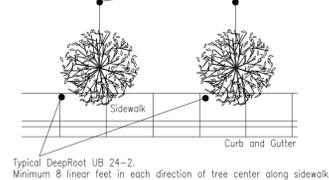
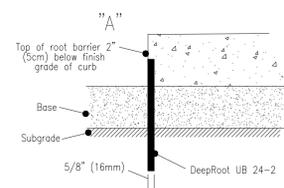
TYPICAL SECTION OF CURB, GUTTER AND SIDEWALK WITH DEEPROOT TREE ROOT BARRIER INSET INTO CONCRETE. BARRIER INSTALLED IN A TRENCH IN SUBGRADE WHICH IS THEN COMPACTED. BARRIER IS SET SO THAT TOP EDGE WILL BE 2" (5CM) ABOVE COMPACTED BASE (OR HALFWAY BETWEEN BASE AND FINISH GRADE OF SW). BARRIER RIBS FACE TOWARD TREE ROOTS.

INSTALLATION SEQUENCE:

1. Prepare base and subgrade
2. Trench to appropriate depth for installation of root barrier so that top of barrier is 2" (5cm) below finish grade of top of sidewalk (or halfway between top of compacted base and finish grade of SW)
3. Place root barrier in trench, vertical ribs must face toward tree roots.
4. Backfill and compact to requirements.
5. Place form material against barrier (it may be nailed from the outside of the form)

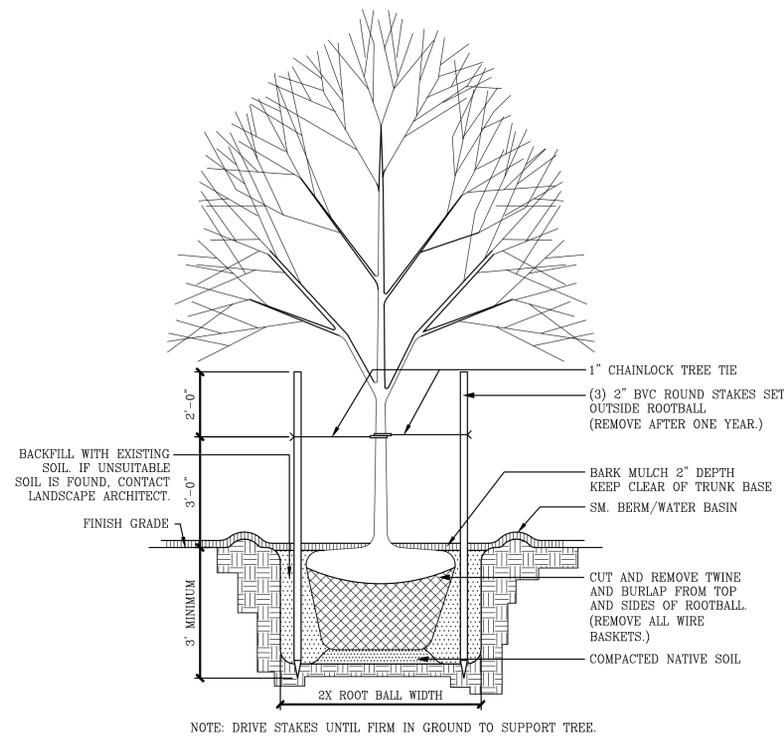


IMPORTANT NOTE: Tree location must align with "as-built" center of barrier.

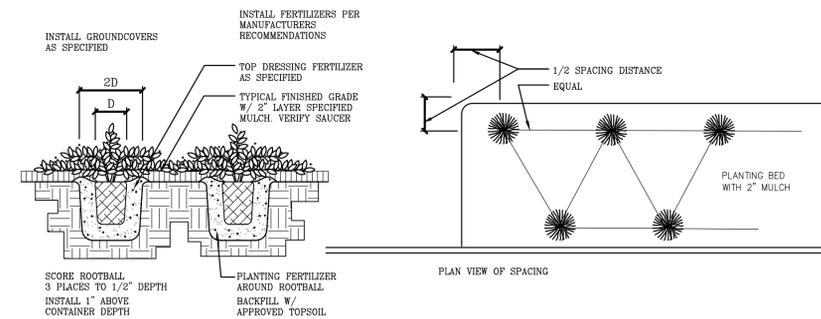


NOTE: ALL STREET TREES SHALL HAVE ROOT BARRIERS. ROOT BARRIERS REQUIRED ADJACENT TO CURB AND GUTTER AND BACK OF SIDEWALK.

4 ROOT BARRIER
4



3 TREE PLANTING / STAKING
4



5 GROUNDCOVER PLANTING
4



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MAINBROOK TOWNHOMES

DRAWING TITLE:
LANDSCAPE PLAN

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DRAWING INFORMATION
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SECTION 1, TOWNSHIP 21N, RANGE 6E, WM.
CITY OF MONROE

IRRIGATION NOTES

IRRIGATION TRENCH DEPTHS, 18" FOR MAINLINE, 12" FOR LATERAL LINES. TRENCHES SHALL BE FREE OF ALL DEBRIS THAT CAN RESULT IN DAMAGE TO THE PIPING.

SET VALVE BOXES SQUARE TO ADJACENT BUILDINGS, WALKS OR PARKING.

PLAN IS DIAGRAMMATIC. STANDARD TRADE PRACTICES TO BE EMPLOYED TO INSURE ECONOMY OF TRENCHING AND SLEEVING. EXACT LOCATION OF LINES AND HEADS MAY BE ALTERED BY CONTRACTOR TO PROVIDE BEST WATER COVERAGE.

OWNER TO PROVIDE DEDUCT/EXEMPT METER AS REQUIRED BY WATER PURVEYOR.

SWING JOINTS TO BE EITHER TRIPLE SWING JOINTS OR TORO FUNNY PIPE.

LEAVE A MINIMUM OF 3' OF ADDITIONAL CONTROL WIRE LOOPED AT EACH VALVE BOX. ATTACH CONTROL WIRES TO THE ADJACENT PIPING WITH ELECTRICAL TAPE, AT LEAST EVERY 20'. RUN 3 SPARE WIRES ALONG ENTIRE LENGTH OF MAINLINE, LOOP THROUGH EACH VALVE BOX TO FARTHEST VALVE BOX EACH DIRECTION.

IRRIGATION SCHEDULE

SYMBOL	TYPE	MANUFACTURER	DESCRIPTION
Q T H TO F EST SST CST	SPRAY POP-UP SHRUB	RAINBIRD	10 SERIES MPR-SERIES - 30 PSI - 10' RADIUS. SST, CST, ES NOZZLE AS NEEDED TO PROVIDE HEAD TO HEAD COVERAGE OR APPROVED EQUAL.
Q T H TO F EST SST CST	SPRAY POP-UP LAWN	RAINBIRD	10 SERIES MPR - 30 PSI - 10' RADIUS. SST, CST, ES NOZZLE AS NEEDED TO PROVIDE HEAD TO HEAD COVERAGE OR APPROVED EQUAL.
ZONE# # X Y	AUTOMATIC CONTROL VALVE	RAINBIRD	100 PEB SERIES - WITH VALVE SIZE, GPM, AND HYDROZONE #
SIZE GPM	VALVE BOX	AMTEK	STANDARD OR JUMBO AS NEEDED - OR APPROVED EQUAL.
M	METER DOUBLE CHECK ASSEMBLY QUICK COUPLER	RAINBIRD	3/4" INSTALL PER CITY STANDARDS.
M	METER DOUBLE CHECK ASSEMBLY QUICK COUPLER	FEBCO	1 1/4" 825Y - OR APPROVED EQUAL.
	GATE VALVE	NIBCO	3RC W/ 33D KEY - OR APPROVED EQUAL.
C	CONTROLLER	RAINBIRD	ESP-MC SERIES 12 STATIONS - OR APPROVED EQUAL.
---	MAINLINE	RAINBIRD	1 1/2" SCHEDULE 40 PVC
---	LATERAL LINE	RAINBIRD	CLASS 200 - SEE SCHEDULE OF PIPE SIZES.
---	SLEEVING	RAINBIRD	SCHEDULE 40 - 2X'S DIAMETER OF PIPE.

PIPE SIZES

GPM	PIPE SIZE
0-8	3/4"
9-15	1"
16-22	1 1/4"
23-35	1 1/2"
36-55	2"

NOTE

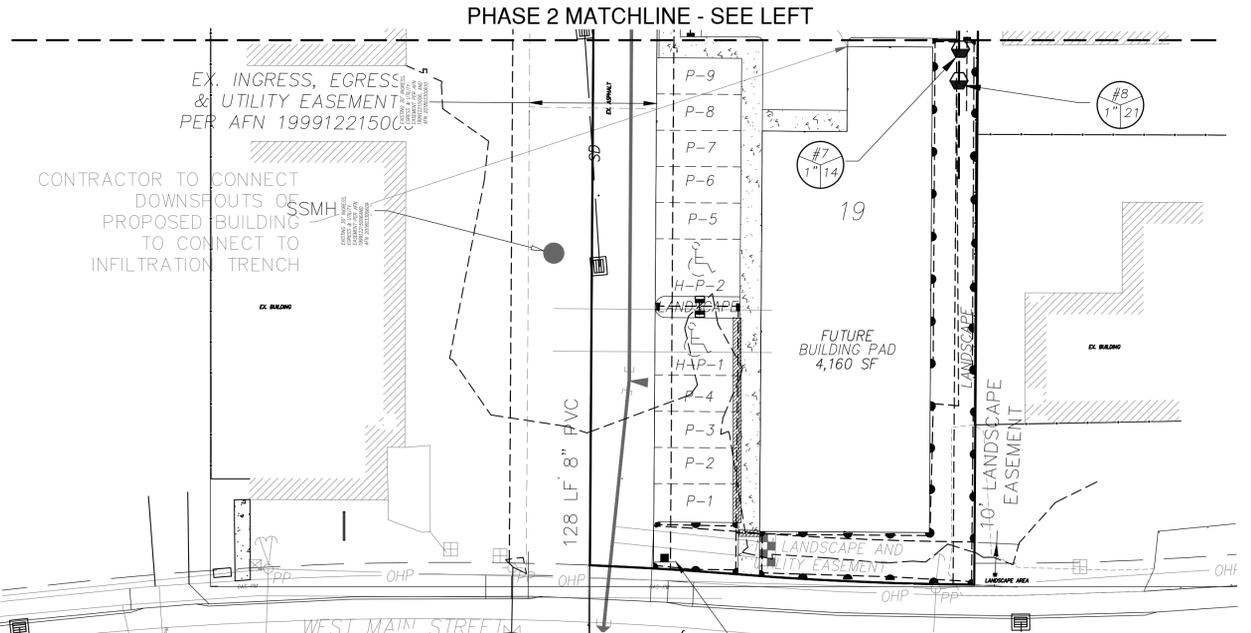
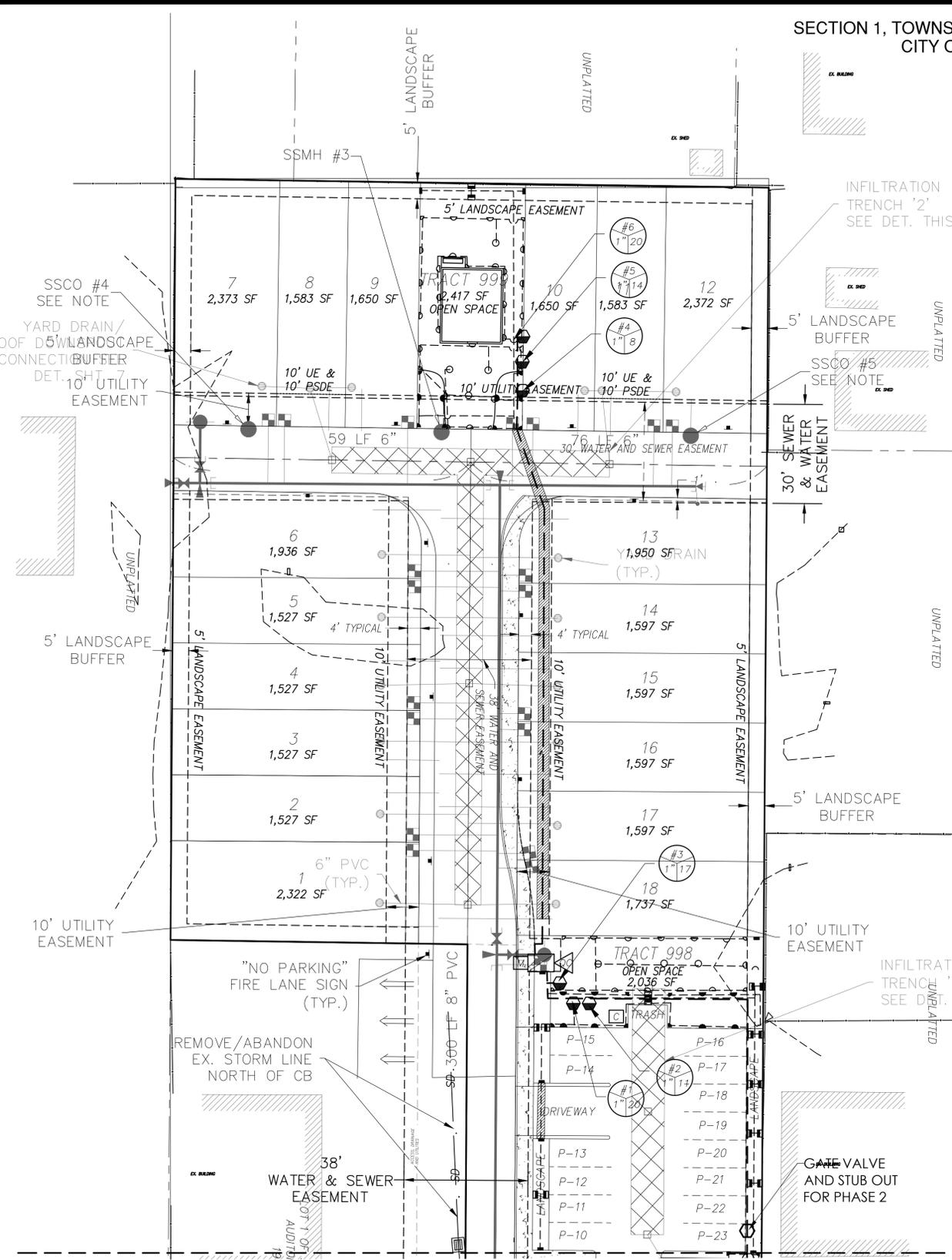
CONTROLLER LOCATIONS ARE REPRESENTATIVE ONLY AND SHOULD BE FIELD LOCATED.

PHASE 1

ZONE #	GPM
1	20
2	11
3	17
4	8
5	14
6	20

PHASE 2

ZONE #	GPM
7	14
8	21



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KRYSTAL LOWE
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REVISIONS

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MAINBROOK TOWNHOMES

DRAWING TITLE:
IRRIGATION PLAN

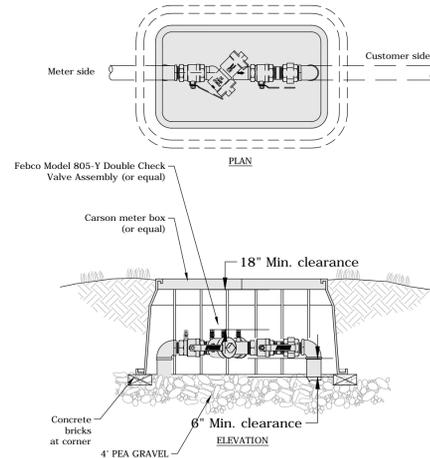
APPLICANT:
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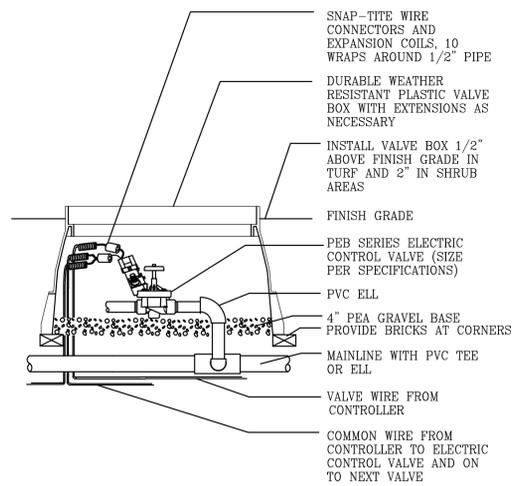
DATE:
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SHEET NO:
L-5
OF 6

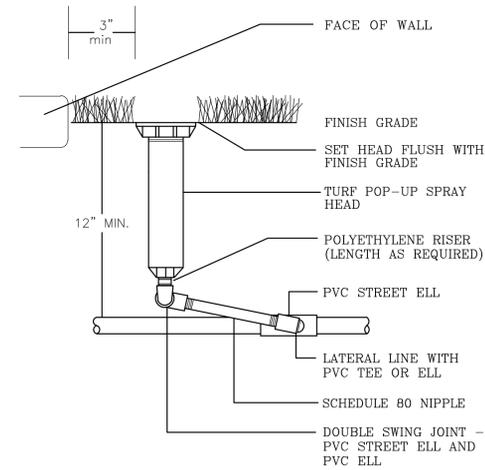
SECTION 1, TOWNSHIP 21N, RANGE 6E, WM.
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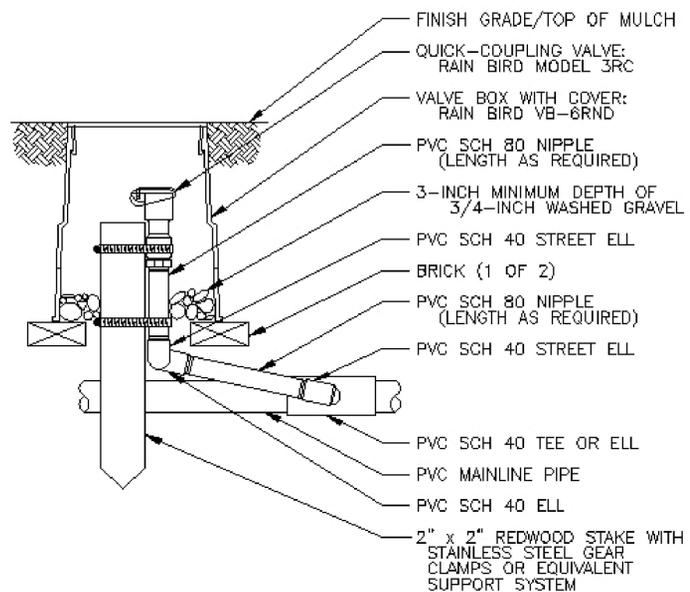
1
6 BACK FLOW PREVENTOR
SCALE: NTS



2
6 REMOTE CONTROL VALVE
SCALE: NTS



3
6 POP UP SPRAY HEAD
SCALE: NTS



NOTE:
FURNISH FITTINGS AND PIPING NOMINALLY SIZED IDENTICAL TO
NOMINAL QUICK COUPLING VALVE INLET SIZE.

4
6 QUICK COUPLING VALVE
SCALE: NTS



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MAINBROOK TOWNHOMES

DRAWING TITLE:
IRRIGATION DETAILS

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