From: Mike Mingee
Sent: Tuesday, April 19, 2022 9:52 AM
To: Austin Wagner
Cc: Joel Dressel
Subject: RE: Rolling Hills Fire hydrant questions
Attachments: Rolling Hills proposed hydrants.pdf

EXTERNAL SENDER: This email originated outside the organization. Do not click links or open attachments unless you verify the sender and know the content is safe.

Ausitn,

Attached is a proposed location of hydrants for this plat. They are close to your suggested locations, but moved to corners and along the major interior Road A and Road B. Also it takes into consideration the hydrant at McCurdy and 5th Place. I look at these from a code requirement, but more importantly how we enter and service homes. At intersections I'm not too concerned about what one of the 4 corners have the hydrant. Dependent on the fire location, our hose may or may not block access. That's just the nature of the business.

I was mistaken on the max separation. Appendix C pertains to commercial construction not residential. Fire code states 600' for residential. My attached suggestion is less than the 600', but allows for logical location for us to serve multiple streets, and lots. And is still 8 hydrants

I'm including Joel on this e-mail since in accordance with SMC his office (Barry) has the final say on this, and will be signature to the utility plan once approved.

Thanks again for having the Fire District weigh in.

From: Austin Wagner [mailto:auwagner@sequimwa.gov]
Sent: Tuesday, April 19, 2022 8:49 AM
To: Mike Mingee <mmingee@ccfd3.org>
Subject: RE: Rolling Hills Fire hydrant questions

Thank you, I'll look for that email.

Austin

From: Mike Mingee <mmingee@ccfd3.org>
Sent: Tuesday, April 19, 2022 8:47 AM
To: Austin Wagner <auwagner@sequimwa.gov>
Subject: RE: Rolling Hills Fire hydrant questions

EXTERNAL SENDER: This email originated outside the organization. Do not click links or open attachments unless you verify the sender and know the content is safe.

.Good Moring Austin
First off, Thank you for reaching out and asking the question.

IFC 2018 (City adopted Code) Appendix C "Fire Hydrant Locations and Distribution" list required number and spacing based on Fire Flow requirements. For Rolling Hills Plat (non- sprinkled single family residential) that would be 1750 gpm. or <. That appendix table states 500' average spacing. The section goes on to state existing hydrants can be considered to meet the requirement.

The distance is measured by street travel not proximity. I've attached a short video that shows how supply hose deploys along a roadway from the rear of the fire engine. (just watch from 2:35 secs) STRUCTURE FIRE: Establishing a Water Supply (Forward Lay) - YouTube

In addition to the letter of the code, hydrant distribution should be along a logical route to the fire. In fact, it would be allowed to exceed the distance up to 550' if it meant a more logical route.

I see that your drawing shows 8 new hydrants to service all phases. Allow me to look and see if we can get those 8 hydrants spaced within the intent of the code at sites that are more logical for us to access the homes.

I'll scan something to you today.

From: Austin Wagner [mailto:auwagner@sequimwa.gov]
Sent: Monday, April 18, 2022 2:08 PM
To: Mike Mingee <mmingee@ccfd3.org>
Cc: Don Ctibor <dctibor@sequimwa.gov>; Joel Dressel <jdressel@sequimwa.gov>
Subject: Rolling Hills Fire hydrant questions

Good afternoon,

Could you look at this question I had about fire hydrants and separations? I added a 250' radius circle and 300' radius circle centered on all proposed and existing fire hydrants on the site (sorry for how busy they are, just wanted to provide the visual of spacing).

The couple questions I had for you that will just help me going forward with review is

- what is the actual distance (500' separation or 600') for residential?
- is that distance a straight distance (everything within 600' is covered) or is it road distance? Is a house that is withing the 300' radius circle covered even if you'd have to go through 2-3 yards to get to it?

Any information or insight on this will help, not only with this project but clarifying these items for all projects in the future.

Austin Wagner
Associate Engineer
City of Sequim
Cell: 360-912-4386
Desk: 360-582-2479

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A PORTION OF THE E 1/2 OF THE NW 1/4, SEC. 30, TWP. 30 N., RGE. 3 W., W.M.



SCALE: 1" = 100'

0 50 100 200

SITE LEGEND

- PROPERTY BOUNDARY
- RIGHT OF WAY
- LOT LINE

CORE DESIGN
CIVIL ENGINEERING
LANDSCAPE ARCHITECTURE
PLANNING
SURVEYING
12100 NE 195th St, Suite 300 Bothell, Washington 98011 425.885.7877

OVERALL SITE PLAN
ROLLING HILLS

JWJ GROUP, LLC
3599 NW CARLTON STREET, SUITE 201
SILVERDALE, WA 98383

DATE	DECEMBER 2021
DESIGNED	SHAWN D. COOPER
DRAWN	MARY E. MOORE
APPROVED	HOLLI H. HEAVRIN, P.E.
	HOLLI H. HEAVRIN, P.E. PROJECT MANAGER

SHEET	OF
C1.02	6

PROJECT NUMBER
21215

Gray & Osborne, Inc.
CONSULTING ENGINEERS

May 5, 2022

Mr. Austin Wagner,
Project Engineer
City of Sequim
Public Works Department
152 West Cedar Street
Sequim, Washington 98382

SUBJECT: PLAT REVIEW, ROLLING HILLS, CITY OF SEQUIM, CLALLAM COUNTY, WASHINGTON
G&O #21627.01

Dear Mr. Wagner:

We have reviewed the proposed water and sewer facilities for the proposed Rolling Hills subdivision. The documents reviewed include the following:

- Rolling Hills Preliminary Civil Plans
  - CORE Design, Dated March 21, 2022.
- Rolling Hills Project Narrative March 29, 2022.
  - The JWJ Group LLC, Dated March, 2022.

Both of these documents were received by Gray & Osborne via email on April 18, 2022.

Additionally, GIS files required for water and sewer modelling were received by Gray & Osborne via email on April 22, 2022.

GENERAL

Rolling Hills is a 215 lot Planned Residential Development (PRD) to be constructed in three phases. The proposed development includes 6.61 acres of open space and requires subdivision of two parcels totaling approximately 44.06 acres. The project site is currently zoned R4-8 – Single Family Residential.

Development of the site includes proposed public rights-of-way, tracts supporting utilities, multiple access points, stormwater facilities, open space, recreational amenities, and vegetated buffers from adjacent land uses. These features are distributed throughout the project and supportive of each phase.

Rolling Hills is located approximately 300 feet south of Highway 101 within the City of Sequim. Overall, the site is gently sloping from its highest areas in the south to the lowest in the north. The site is vegetated primarily with grasses and shrubs with a sparse number of small to medium size trees throughout the site.

Gray & Osborne was asked to provide preliminary review of the proposed water and sewer utilities, and for conformance of the documents listed above with the City of Sequim Developer Standards. Below is a summary of our findings.

WATER

Plans

We have reviewed the proposed Rolling Hills Preliminary Civil Plans to verify that the proposed water utilities are in compliance with the City of Sequim's Development Standards as outlined in the 2013 Water System Plan (*2013 WSP*). Out of that review, we have the following comments:

1. Please provide size and type of the proposed water system piping on the Plans.

2. Please add a standard City Approval Block.

3. Please include details for water system piping on the Plans. Without these details, we cannot verify the following information at this point in time:

    a. Burial depth (City Developer Standards II-3.6)
    b. Valve box type
    c. Service line size
    d. Vertical separation from wastewater utility piping
    e. Meter box location

4. Please ensure that thrust blocks are provided at all water system piping fittings and bends.

5. Please confirm/ensure that the minimum horizontal separation (10-feet) between wastewater conveyance piping and water supply piping is met (City Developer Standards II-3.29). Modify the Plans as required to meet this requirement.

Modeling

General

We have analyzed the available fire flow for the proposed Rolling Hills development located as described above. Our effort for this modeling exercise was to determine the system pressure during peak hour demand conditions and the available fire flow during maximum day demand conditions.

Model Setup

Modeling was performed using InfoWater version 12.4 which operates in an ArcGIS environment. The City provided Gray & Osborne with an updated GIS base map (as of April 2022) for the water system, including pipe locations and diameters. This base map was developed for the *2013 WSP* and the updated version was used to update pipe sizes within the system where necessary. It is important to note that the model was not recalibrated as part of this effort, and as such, the model may not reflect all current water system settings with regards to pump curves, operational setpoints, PRV and other valve settings, or system elevations.

The proposed Rolling Hills development was modeled under peak hour demands to determine if pressures exceed the minimum requirement of 30 psi at the meter location, as well as under maximum day demands with fire flow. These standards are set by DOH, the City, and are listed under Washington Administrative Code (246-290-230).

The proposed water mains were added to the City's water model based on preliminary civil plans (Plans) provided by CORE Design. The Plans provide looped mains throughout the development, all of which are assumed to be 8-inch. Modeled hydrant locations are based on the proposed hydrant locations identified on the Plans.

The proposed development is located in the 420 Zone, which is supplied by the 5th and McCurdy Booster Station and the 1.7 MG 420 Zone reservoir.

Assumptions

The following assumptions were utilized within the hydraulic model to determine the static pressure and available fire flow:

- The available pressures are modeled at nodes throughout the development, while fire flows are modeled at nodes corresponding to proposed hydrant locations.

- Water system demands are based on 2032 projections. Reservoirs are depleted of operational, fire suppression, and equalizing storage as established in the *2013 WSP* for the fire flow analysis. For the peak hour demand analysis, reservoirs are depleted of operational and equalizing storage.

- All pump stations are idle with the exception of the 775 Zone booster station. The Silberhorn well field is producing up to 520 gpm (2 wells), and the Infiltration Gallery is supplying up to 350 gpm.

- The development is proposed to occur over three phases, and the system was analyzed using two configurations described below.

- In all configurations, new 8-inch diameter water mains are installed throughout the development and connections to the existing system are as proposed in the Plans.

- During Phases 1 and 2 of the development, the connection to West McCurdy Road is the only connection to the existing system (Configuration A). As the development progresses to Phase 3, additional connections to the existing system are utilized (Configuration B).

- As an alternative, a potential future 12-inch water main extending along South 7th Avenue from West McCurdy Road to East Silberhorn Road was added to the model. This potential main was identified as a capital improvement project in the *2013 WSP* (project D-28). The Rolling Hills developer has indicated that they plan to connect to this main if it is installed. The development was modeled both with (Option 1) and without (Option 2) this future 12-inch main.

- Residential fire flow requirements for the City of Sequim are 1,000 gpm for sixty minutes (*2013 WSP & 2009 International Fire Code (IFC)*).

- Velocities within the pipe are limited to ten feet per second.

Analysis

Peak Hour Pressure

Using the assumptions and model setup described above, Figure 1 provides the results for the peak hour pressure analysis.

During peak hour demand, pressures throughout the Rolling Hills development range from 32 psi at the south end of the development near West Norman Street to 60 psi at the north end near West McCurdy Road. The peak hour pressures are similar for both piping configurations, regardless of the number of connections to the City's system.

Pressures in the model are noted at grade elevation in accordance with DOH requirements. Although the pressures in the southern portion of Phase 3 are very near the DOH limit of 30 psi and are likely below the limit on the second floor of any homes in this area, it should be noted that the model is predicting pressures with equalizing and operational storage depleted. As such, the modeled pressures represent a "worst case" scenario and the results are considered conservative.

Fire Flow

Analysis was performed to determine the available fire flow to nodes in the study area with maximum day system demands while maintaining a minimum pressure of 20 psi throughout the system and while maintaining velocities of less than ten feet per second in the system's pipes.

Available fire flow was determined for Phases 1 and 2 of the development, and two configurations were considered. The configurations are defined below and results for both of these configurations are listed on Figure 2.

- Configuration A1: Connection to the City's system at West McCurdy Road.
- Configuration A2: Connection to the City's system at West McCurdy Road and connection to the City's future 12-inch main along South 7th Avenue.

Figure 2 shows that throughout all portions of the proposed development, the required fire flow of 1,000 gpm for sixty minutes is met for both configurations.

Phase 1&2 Connection to Existing System

HIGHWAY 101

W SALAL PL

S MAIZIE CT

S 5TH PL

S 5TH AVE

W MCCURDY RD

Node: J2596
Elevation: 283 ft
PHD Pressure: 55 psi

Node: J2604
Elevation: 271 ft
PHD Pressure: 60 psi

5th and McCurdy Booster Station

PHASE 1

Node: J2598
Elevation: 286 ft
PHD Pressure: 54 psi

Node: J2606
Elevation: 273 ft
PHD Pressure: 60 psi

Phase 1&2 Connection to Proposed 12" Pipe (Option 2)

Node: J2608
Elevation: 275 ft
PHD Pressure: 59 psi

Node: J2610
Elevation: 274 ft
PHD Pressure: 59 psi

Node: J2614
Elevation: 272 ft
PHD Pressure: 60 psi

Node: J2602
Elevation: 282 ft
PHD Pressure: 56 psi

DAISY LN

Node: J2600
Elevation: 285 ft
PHD Pressure: 54 psi

Node: J2612
Elevation: 273 ft
PHD Pressure: 60 psi

PHASE 2

Node: J2616
Elevation: 285 ft
PHD Pressure: 54 psi

Node: J2620
Elevation: 281 ft
PHD Pressure: 56 psi

Node: J2622
Elevation: 285 ft
PHD Pressure: 54 psi

Node: J2628
Elevation: 285 ft
PHD Pressure: 54 psi

S 7TH AVE

Node: J2618
Elevation: 289 ft
PHD Pressure: 53 psi

BIGLEAF LP

Node: J2626
Elevation: 284 ft
PHD Pressure: 55 psi

Node: J2624
Elevation: 287 ft
PHD Pressure: 54 psi

SYCAMORE ST

Proposed 12-inch Pipe WSP CIP D-28

Node: J2652
Elevation: 297 ft
PHD Pressure: 50 psi

E SILBERHORN RD

Phase 3 Connection to Existing System

Phase 3 Connection to Existing System

PHASE 3

Node: J2636
Elevation: 308 ft
PHD Pressure: 45 psi

Node: J2640
Elevation: 315 ft
PHD Pressure: 42 psi

Node: J2638
Elevation: 310 ft
PHD Pressure: 44 psi

MALIANDRA DR

S 7TH AVE

Node: J2642
Elevation: 324 ft
PHD Pressure: 38 psi

Node: J2644
Elevation: 325 ft
PHD Pressure: 38 psi

Phase 3 Connection to Existing System

Node: J2648
Elevation: 338 ft
PHD Pressure: 32 psi

Node: J2646
Elevation: 338 ft
PHD Pressure: 32 psi

COMFORT WAY

W NORMAN ST

W NORMAN ST

LEGEND

- Modeled Nodes - Hydrants
- Modeled Nodes
- Existing Hydrant
- Phases 1/2 Pipes (8")
- Option 2 - New 12" Pipe/Connection
- Phase 3 Pipes
- Existing Pump Station
- Existing Valve House
- Parcels

Existing Pipe Size

- 4" and Smaller
- 6"
- 8"
- 10"
- 12"
- 16"
- Unknown

N

200 100 0 200

Feet

CITY OF SEQUIM
ROLLING HILLS WATER MODELING
FIGURE 1
PEAK HOUR PRESSURE RESULTS

Gray & Osborne, Inc.
CONSULTING ENGINEERS

Document Path: M:\SEQUIM\21627 - On-Call Construction Management\Task 01 - Rolling Hills Developer Review\Water Modeling\GIS\Fig1.mxd

Phase 1&2 Connection to Existing System

HIGHWAY 101

W SALAL PL

S MAIZIE CT

S 5TH PL

S 6TH AVE

W MCCURDY RD

Node: J2596
Option 1 FF: 1530 gpm
Option 2 FF: 2860 gpm

Node: J2604

5th and McCurdy Booster Station

PHASE 1

Node: J2598

Node: J2606

Phase 1&2 Connection to Proposed 12" Pipe (Option 2)

Node: J2610
Option 1 FF: 1530 gpm
Option 2 FF: 2220 gpm

Node: J2614

Node: J2602
Option 1 FF: 1530 gpm
Option 2 FF: 2300 gpm

Node: J2608

Node: J2612

DAISY LN

Node: J2600

PHASE 2

Node: J2616

Node: J2620

Node: J2622
Option 1 FF: 1530 gpm
Option 2 FF: 2520 gpm

Node: J2618
Option 1 FF: 1530 gpm
Option 2 FF: 2490 gpm

Node: J2626

Node: J2624

BIGLEAF LP

S 7TH AVE

Future 12-inch Pipe CIP D-28

SYCAMORE ST

E SILBERHORN RD

PHASE 3

MALIANDRA DR

COMFORT WAY

W NORMAN ST

LEGEND

- Modeled Nodes
- Modeled Nodes - Hydrants
- Existing Hydrant
- Phases 1/2 Pipes (8")
- Option 2 - New 12" Pipe/Connection
- Existing Pump Station
- Existing Valve House
- Parcels

Existing Pipe Size

- 4" and Smaller
- 6"
- 8"
- 10"
- 12"
- 16"
- Unknown

N

200 100 0 200

Feet

CITY OF SEQUIM
ROLLING HILLS WATER MODELING
FIGURE 2
PHASE 1/2 FIRE FLOW RESULTS

Gray & Osborne, Inc.
CONSULTING ENGINEERS

Document Path: M:\SEQUIM\21627 - On-Call Construction Management\Task 01 - Rolling Hills Developer Review\Water Modeling\GIS\Fig2.mxd

In Configuration A1 the single connection to the City's system at West McCurdy Road restricts the modeled fire flow, as all flow to the development must be routed through this pipe. The velocity in this pipe reaches the allowed maximum of ten feet per second at a flow of 1,560 gpm.

Similarly, in Configuration A2 the 8-inch connection to the future 12-inch main along South 7th Avenue is the primary constriction point that limits the modeled fire flow to the development. This pipe is subject to the greatest velocity when a high flow is supplied to the development.

Available fire flow was also determined for Phases 1, 2, and 3 of the development, and two configurations were considered. The configurations are defined below and results for both of these configurations are listed on Figure 3.

- Configuration B1: Connection to the City's system at West McCurdy Road, East Silberhorn Road, and West Norman Street.

- Configuration B2: Connection to the City's system at West McCurdy Road, East Silberhorn Road, West Norman Street, and the City's future 12-inch main along South 7th Avenue.

Figure 3 shows that throughout all portions of the proposed development, the required fireflow of 1,000 gpm for sixty minutes is met for both configurations.

Similar to Configurations A1 and A2, the flow to the development is limited by the maximum allowable velocity of ten feet per second.

Conclusions

- The model predicts that system pressure within the proposed development will remain above 30 psi at finished grade under peak hour demand conditions and with equalizing and operational storage depleted.

    - System pressures on the second floor of homes at the southern edge of the development may be less than 30 psi if equalizing and operational storage volumes are depleted.

Phase 1&2 Connection to Existing System

HIGHWAY 101

W SALAL PL

S MAIZIE CT

S 5TH PL

S 5TH AVE

W MCCURDY RD

Node: J2596
Option 1 FF: 2860 gpm
Option 2 FF: 2950 gpm

Node: J2604

5th and McCurdy Booster Station

PHASE 1

Node: J2598

Node: J2606

Phase 1&2 Connection to Proposed 12" Pipe (Option 2)

Node: J2610
Option 1 FF: 2530 gpm
Option 2 FF: 2550 gpm

Node: J2614

Node: J2602
Option 1 FF: 2620 gpm
Option 2 FF: 2360 gpm

Node: J2608

Node: J2612

DAISY LN

Node: J2600

PHASE 2

Node: J2616

Node: J2620

Node: J2622
Option 1 FF: 2410 gpm
Option 2 FF: 2530 gpm

Node: J2618
Option 1 FF: 2490 gpm
Option 2 FF: 3110 gpm

Node: J2628
Option 1 FF: 2320 gpm
Option 2 FF: 2320 gpm

Node: J2626

Node: J2624

BIGLEAF LP

SYCAMORE ST

S 7TH AVE

Proposed 12-inch Pipe WSP CIP D-28

E SILBERHORN RD

Node: J2652

Phase 3 Connection to Existing System

Phase 3 Connection to Existing System

Node: J2636
Option 1 FF: 2990 gpm
Option 2 FF: 2990 gpm

Node: J2638

Node: J2640

MALIANDRA DR

S 7TH AVE

Node: J2642
Option 1 FF: 2840 gpm
Option 2 FF: 2830 gpm

Node: J2644

Phase 3 Connection to Existing System

COMFORT WAY

Node: J2648

Node: J2646

W NORMAN ST

LEGEND

- Modeled Nodes - Hydrants
- Modeled Nodes
- Existing Hydrant
- Phases 1/2 Pipes (8")
- Option 2 - New 12" Pipe/Connection
- Phase 3 Pipes
- Existing Pump Station
- Existing Valve House
- Parcels

Existing Pipe Size

- 4" and Smaller
- 6"
- 8"
- 10"
- 12"
- 16"
- Unknown

N

200 100 0 200

Feet

CITY OF SEQUIM
ROLLING HILLS WATER MODELING
FIGURE 3
PHASE 3 FIRE FLOW RESULTS

Gray & Osborne, Inc.
CONSULTING ENGINEERS

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- The modeled 8-inch piping is able to provide the required fire flow (>1,000 gpm for sixty minutes), with or without the auxiliary connection to the proposed 12-inch City main, while also providing maximum day demands at 20 psi and a maximum velocity through the distribution system of ten feet per second with equalizing, operational, and fire suppression storage depleted.

- Providing an additional connection to the City's system via a future 12-inch main along South 7th Avenue provides an increase in the available fire flow.

- With the addition of Phase 3, the impact of the proposed connection to South 7th Avenue becomes less pronounced as a result of the proposed connections to West Norman Street and Silberhorn Road.

SEWER

Plans

We have reviewed the proposed Rolling Hills Preliminary Civil Plans to verify that the proposed sewer utilities are in compliance with the City of Sequim's Development Standards as outlined in the 2013 General Sewer Plan (*2013 GSP*). Out of that review, we have the following comments:

1. Please provide size and slope for the proposed wastewater conveyance piping on the Plans.

2. Please add a standard City Approval Block.

3. Please provide a plan and profile for wastewater conveyance piping on the Plans. Without this information, we cannot verify the following information at this point in time:

    a. Minimum slope requirements (City Developer Standards III-3.10)
    b. Minimum pipe depth requirements (City Developer Standards III-4)
    c. Minimum manhole depth requirements (City Developer Standards III-3.12)

d. Minimum vertical separation between wastewater conveyance piping and water supply piping (City Developer Standards III-3.30).

In general, wastewater conveyance via gravity for all parcels within the proposed development to the proposed connection point in the northwest corner of the development appear to be feasible.

4. Washington State Department of Ecology (Ecology) review and approval is required per City Developer Standards III-3.1 as listed in the 2013 GSP.

5. Please confirm/ensure that the minimum horizontal separation (10-feet) between wastewater conveyance piping and water supply piping is met (City Developer Standards III-3.30). Modify the Plans as required to meet this requirement.

6. Please provide details for pipe connection and manhole connection were on the Plans.

Modeling

When modeling the effects of the proposed 215 lot Rolling Hills development, two scenarios were analyzed. The first scenario is for projected flows in the year 2032 while the second scenario is for projected flows for full and complete buildout as modeled in the City's *2013 GSP*. In each scenario, all 215 units were assumed to be completed.

In the original sewer model prepared for the *2013 GSP*, the Rolling Hills area was estimated to contain 37 multi-family ERUs over 44 acres. This resulted in a peak hour flow from Basin 15 per the *2013 GSP*, including inflow and infiltration, of 37.5 gpm.

For modeling analysis of the proposed Rolling Hills development (215 single-family ERUs over 44 acres), the modeled peak hour flow, including inflow and infiltration, was increased to 80.9 gpm.

It should be noted that the size for the proposed wastewater conveyance piping is not indicated on the Plans. For the purposes of this analysis, all proposed piping was assumed to be 8-inch diameter PVC piping.

Typically, wastewater is conveyed east within wastewater piping within McCurdy Road. This piping is shown in Figure 4, contains several manholes, and is 8-inch diameter PVC piping.

To model the system, the proposed flow of 80.9 gpm was inserted to Manhole 30-2-25 as shown in Figure 5 near the intersection of McCurdy Road and South Fifth Place. The invert of the outlet for this manhole is 261.84 feet. This represents the proposed connection point for the proposed Rolling Hills Development.

The model revealed a surcharging of up to 0.05 feet for the 2032 scenario and up to 0.08 feet in the buildout scenario for one pipe segment along South Fifth Place from Manhole 30-2-25 to 19-3-27 (see red pipe shown below). The *2013 GSP* defines a deficient pipe to include those pipes that surcharge greater than one foot. Based on this definition, the immediate downstream pipes do not warrant replacement due to the increase of flows from the proposed Rolling Hills development.

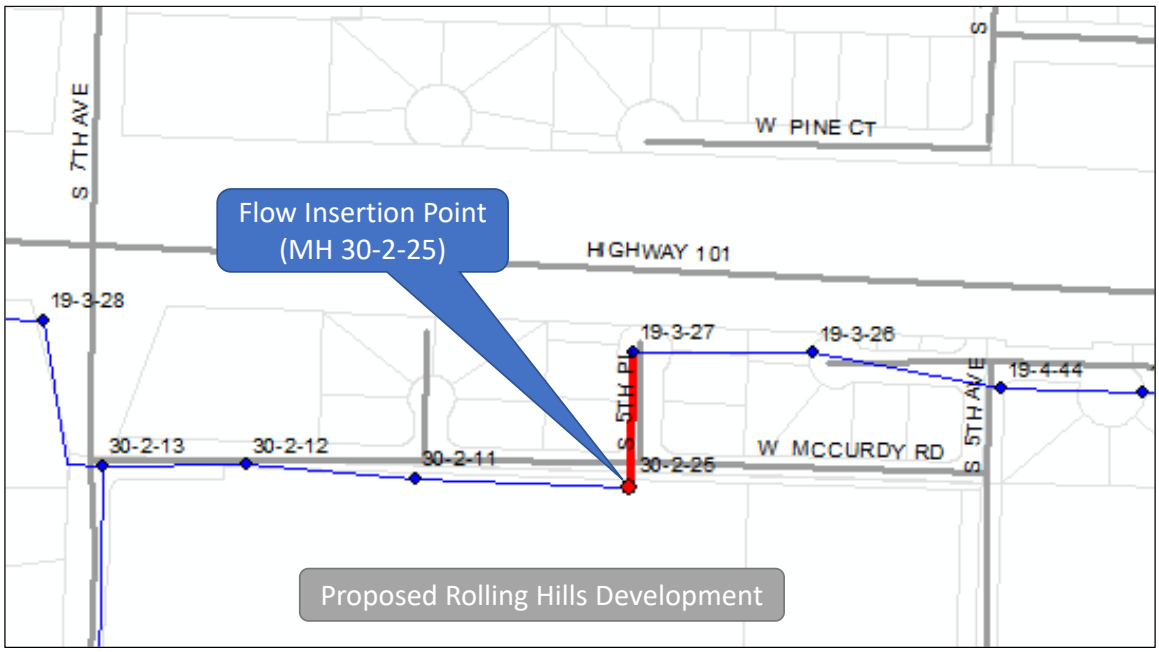


FIGURE 4

Wastewater Conveyance Modeling Results

It is worth noting that one additional downstream pipe becomes surcharged during the buildout scenario with the addition of these flows. Figure 5 shows an additional surcharged pipe between Manholes 20-3-06 and 20-3-04 along North Sunnyside Avenue between East Bell Street and West Washington Street. However, the pipe only surcharges 0.1 feet so the newly modeled flows do not appear to exacerbate the downstream conditions to a point of needing replacement.

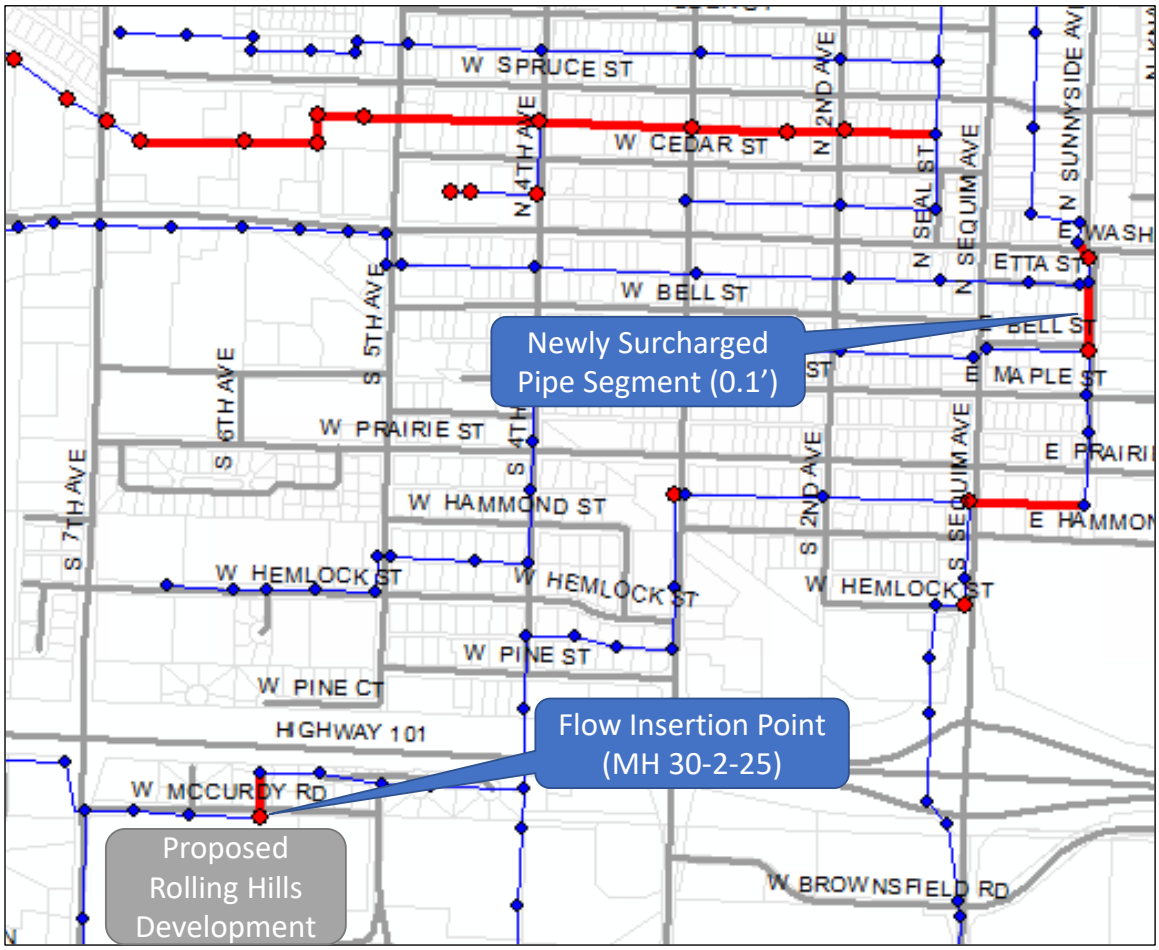


FIGURE 5

Wastewater Conveyance Modelling Results – Additional Pipe Surcharging

STORMWATER

Review of the proposed stormwater facilities is being provided separately and is not included in the scope of work for Gray & Osborne.

GEOTECHNICAL

Review of geotechnical investigation(s) are being provided separately and are not included in the scope of work for Gray & Osborne.

ROADS & TRAFFIC

Review of the proposed traffic study and any associated traffic modifications as well as review of proposed roads and grading are being provided separately and are not included in the scope of work for Gray & Osborne.

LANDSCAPING

Review of the proposed landscaping is being provided separately and is not included in the scope of work for Gray & Osborne.

If you should have any questions regarding the comments listed above, please contact me at (206) 284-0860 or via email at kstewart@g-o.com. Thank you very much for the opportunity to provide this review.

Sincerely,

GRAY & OSBORNE, INC.

Keith Stewart, P.E.

KS/sr
Encl.

cc: Mr. Don Ctibor, P.E., City Engineer, City of Sequim

From: Dave Johnson
Sent: Friday, May 6, 2022 10:32 AM
To: Austin Wagner
Cc: Don Ctibor; Sarah VanAusdle; Calvin McCaughan
Subject: RE: Task Order 3 - 3rd Party Review for Rolling Hills Subdivision

---

EXTERNAL SENDER: This email originated outside the organization. Do not click links or open attachments unless you verify the sender and know the content is safe.

Hi Austin,

Here are Landau's compile comments in regards to the Rolling Hills Subdivision Preliminary Submittal Package. Let us know if you would like to discuss any of these in greater detail. I would be happy to walk through them with you if needed.

Rolling Hills Subdivision Preliminary Review/Comments:

Documents Reviewed: Preliminary Drainage Report, Geotechnical Engineering Report, Preliminary Civil Plans, Existing Site Conditions, Project Narrative.

Geotech/Drainage Comments:

- In general the preliminary design approach and provided information is sound and in line with general practice. Proposed LID drainage design includes infiltration pond, bioretention swales, and ConTech StormFilter pre-treatment vaults.

- The field investigation was completed in July 2021. Groundwater levels fluctuate seasonally, with maximum groundwater levels occurring during the late winter and early spring. The Riley Group, Inc. (RGI) should evaluate the depth to seasonal high groundwater at the site and include it in their report. Per Section III-3.3.5 of the Washington State Department of Ecology's *2012 Stormwater Manual for Western Washington, as Amended in December 2014* (*2014 SMMWW*), a groundwater mounding analysis is required if the separation between the base of the proposed infiltration pond and seasonal high groundwater is less than 15 feet (ft).

- The pilot infiltration test (PIT) was completed in July 2021. Per Section III-3.3.4 of the *2014 SMMWW*, PITs should be completed between December 1 and April 1. Because the PIT was completed outside of the required testing window, RGI should validate the PIT results and state if the recommended infiltration rate is applicable during other times of the year or repeat the infiltration during the required wet season window.

- A correction factor for site variability and the number of locations tested (CFv) equal to 1.0 is inappropriate due to an inadequate number of explorations within the proposed pond footprint. Additionally, the base of the proposed pond is 6 ft bgs and most of the July 2021 test pits were terminated 5 ft bgs. There is limited site subsurface data below 5 ft bgs. RGI should amend its report to either, 1) reduce CFv to a more conservative correction factor and amend its report with an updated infiltration rate, or 2) complete additional explorations or infiltration tests within the infiltration pond footprint to confirm consistent subsurface conditions beyond 5 ft bgs and thereby justification of for using the correction factor of 1.0.

- The Simplified Approach was used to develop a design infiltration rate. Per Section III-3.3.4 of the *2014 SMMWW*, the Detailed Approach is more appropriate for larger projects that have a contributing drainage basin area greater than 1 acre. RGI should revise its report to either, 1) provide justification of the use of the Simplified Approach, or 2) use the Detailed Approach.

// DAVE JOHNSON PE
LANDAU ASSOCIATES
D: 360.628.5243 M: 360.582.7853

From: Austin Wagner <auwagner@sequimwa.gov>
Sent: Thursday, April 21, 2022 12:47 PM
To: Calvin McCaughan <CMcCaughan@landauinc.com>
Cc: Don Ctibor <dctibor@sequimwa.gov>; Sarah VanAusdle <svanausdle@sequimwa.gov>; Dave Johnson <DJohnson@landauinc.com>; Annabel Warnell <AWarnell@landauinc.com>
Subject: RE: Task Order 3 - 3rd Party Review for Rolling Hills Subdivision

Thank you, and I have attached the fully executed version of the task order for your record.

Austin Wagner
Associate Engineer
City of Sequim
Cell: 360-912-4386
Desk: 360-582-2479

From: Calvin McCaughan <CMcCaughan@landauinc.com>
Sent: Thursday, April 21, 2022 12:24 PM
To: Austin Wagner <auwagner@sequimwa.gov>
Cc: Don Ctibor <dctibor@sequimwa.gov>; Sarah VanAusdle <svanausdle@sequimwa.gov>; Dave Johnson <DJohnson@landauinc.com>; Annabel Warnell <AWarnell@landauinc.com>
Subject: RE: Task Order 3 - 3rd Party Review for Rolling Hills Subdivision

EXTERNAL SENDER: This email originated outside the organization. Do not click links or open attachments unless you verify the sender and know the content is safe.

Austin,

Thanks for the reminder. Please see attached and let me know if you have questions. Dave and Annabel will be in touch with review comments before May 6.

Best,

Calvin

From: Austin Wagner <auwagner@sequimwa.gov>
Sent: Monday, April 18, 2022 1:23 PM
To: Calvin McCaughan <CMcCaughan@landauinc.com>
Cc: Don Ctibor <dctibor@sequimwa.gov>; Sarah VanAusdle <svanausdle@sequimwa.gov>
Subject: RE: Task Order 3 - 3rd Party Review for Rolling Hills Subdivision

Sorry, here's the correct dropbox link. The other is for the utilities only.

https://www.dropbox.com/sh/g3t3tmz6got2kpx/AAA9QdhkX_Ho6I1uBRmKQWq7a?dl=0

Austin

From: Austin Wagner
Sent: Monday, April 18, 2022 1:20 PM
To: cmccaughan@landauinc.com

Cc: Don Ctibor <dctibor@sequimwa.gov>; Sarah VanAusdle <svanausdle@sequimwa.gov>
Subject: Task Order 3 - 3rd Party Review for Rolling Hills Subdivision

Good afternoon,

Please look over the attached task order along with the supporting documents to provide a Task order estimate, and a projected time frame for review.

https://www.dropbox.com/sh/262a6acnz64cl6s/AABfkB-qmRHMh8NC5i0gfs03a?dl=0

Please let me know if there's is any additional information you need or the dropbox link has issues,

Thank you.

Austin Wagner
Associate Engineer
City of Sequim
Cell: 360-912-4386
Desk: 360-582-2479

transpogroup
WHAT TRANSPORTATION CAN BE.

TG: 1.21109.02

May 9, 2022

Austin Wagner
Associate Engineer
City of Sequim
152 West Cedar Street
Sequim, WA 98382

SUBJECT: ROLLING HILLS PLAT TRAFFIC IMPACT ANALYSIS REVIEW COMMENTS

Dear Mr. Wagner:

We have completed our independent review of the March 2022 Traffic Impact Analysis (TIA) prepared by Heath & Associates Inc. for the Rolling Hills Plat proposal on behalf of the City of Sequim. Our review comments have been summarized below, with additional detailed comments identified in the attached marked-up PDF copy of the TIA. We ***recommend the City request the Applicant to update the TIA*** to address all the comments noted in this letter and in the marked-up PDF copy of the TIA. Additionally, ***we recommend the City share the updated TIA and our comments with WSDOT*** since the proposal is shown to impact a WSDOT controlled intersection. The major comments are as follows:

Page 5. COVID Adjustment. Due to counts collected in 2021, review of historical counts should be included to determine any impacts related to COVID. Existing volumes should be adjusted as needed based on the review. Transpo has some data on the north side of SR 101 that could be helpful to Heath & Associates. Please have them reach out directly to me.

Page 7. Existing Traffic Operations. The delay and level of service for a stop controlled intersection should be updated to be based on the worst movement rather than approach delay. The results should be updated accordingly. The channelization at the 3rd Ave/Washington St intersection should be corrected and the operations updated.

Page 9. Transportation Improvement Program (TIP). Numerous planned transportation projects were identified within the study area that may impact the operational analysis. Additional coordination with the City needs to be completed to determine the extent that these projects should be evaluated and assumed in the analysis. Following discussion with the City, the study should identify impacts to the operational analysis and update the future analysis, as applicable. The transportation improvement program should be included in the future conditions analysis as it impacts the future condition.

Page 10. Sight Distance. The entering and stopping sight distance triangles need to be included for all proposed accesses in the report. A summary of the sight distance analysis results should be included in the TIA in table format to better understand the available site distance as compared to the required entering and stopping sight distance standards. The sight distance analysis should be moved to the future conditions analysis.

Page 15. Future Traffic Operations. The delay and level of service for a stop controlled intersection should be updated to be based on the worst movement rather than approach delay. The channelization at the 3rd Ave/Washington St intersection should be corrected and the operations updated accordingly.

Page 16. Future Traffic Operations. Identify increases in delay, queues, and traffic volumes with the project relative to without-project conditions.

Page 18. City Design Standards. Provide additional discussion and illustrations of required frontage improvements and off-site improvements to address all access points, but in particular, the access to Norman Street. Include the illustrations and proposed improvements on the site plan to understand the new infrastructure being proposed. For example, Norman Street does not extend to the site today, but a majority of traffic will be using that access point in the future.

Required Additions to the TIA:

Traffic Safety. Complete a traffic safety review of the most recent 5 years of collision data at all study intersections and along adjoining roadways around the site.

Safe Walk Route to Schools. The TIA should note the safe walk routes to school or the closest existing school bus stop for the elementary, middle, and high schools. The existing conditions of the walk route or the route to the bus stop should be described, noting whether there is a safe walk route and if there is a paved area for students to wait that is separated from the adjoining roadway with lighting present. Potential improvements to the walk route and bus stop should be included as part of the recommended mitigation.

Mitigation. Evaluate all potential traffic control options to mitigate the impacts at the S Sequim Avenue / SR 101 EB Ramp intersection, and any other intersection operating below standard. The all-way stop control and traffic signal concepts should include a warrant analysis per the MUTCD. The evaluation of traffic control should also include the potential for roundabout control (see next comment). Include potential mitigation to address any traffic safety, sight distance, or school bus stop / walk route needs.

Intersection Control Evaluation. Coordinate with the City and WSDOT to complete an Interchange Control Evaluation (ICE) for the S Sequim Avenue / SR 101 EB Ramp intersection based on the guidelines set in Chapter 1300.05(1) Intersection Control Evaluation Section of the WSDOT Design Manual. The results will be utilized by the City and WSDOT to determine the appropriate traffic control for the intersection. The information is necessary in order to identify the proportionate share mitigation the Applicant is responsible to contribute to mitigate their impacts.

Based on our review and comments on the TIA in both this letter and the attached marked-up TIA, the City should require the Applicant to address each comment and prepare an updated TIA. We are available to review our comments with the City and/or Applicant. Please do not hesitate to contact me at 425.821.3665 should you have any questions about our comments or want to schedule a meeting.

Thank you for the opportunity to assist.

Sincerely,
Transpo Group



Jon Pascal, PE
Principal
jon.pascal@transpogroup.com

Allyson Brooks Ph.D., Director
State Historic Preservation Officer

July 6, 2022

Mr. Travis Simmons
Department of Community Development
Assistant Planner
City of Sequim
152 West Cedar Street
Sequim, WA 98382

In future correspondence please refer to:
Project Tracking Code: 2022-07-04482
Property: City of Sequim_ Rolling Hills Major Subdivision
Re: Survey Requested

Dear Mr. Simmons:

Thank you for contacting the Washington State Historic Preservation Officer (SHPO) and Department of Archaeology and Historic Preservation (DAHP) and providing documentation regarding the above referenced project. A desktop review using our statewide predictive model has identified the proposed project area as having high sensitivity for archaeological resources. The proposed project area is adjacent to a previously recorded archaeological site, which may extend into the current proposed project area. Further, the scale of the proposed ground disturbing actions would destroy any archaeological resources present. Identification during construction is not a recommended detection method because inadvertent discoveries often result in costly construction delays and damage to the resource. Therefore, we recommend a professional archaeological survey of the project area be conducted prior to ground disturbing activities. We also recommend consultation with the concerned Tribes' cultural committees and staff regarding cultural resource issues.

These comments are based on the information available at the time of this review and on behalf of the SHPO in conformance with Washington State law. Should additional information become available, our assessment may be revised.

Thank you for the opportunity to comment on this project and we look forward to receiving the survey report. Should you have any questions, please feel free to contact me.

Sincerely,

Dennis Wardlaw
Transportation Archaeologist
(360) 485-5014
dennis.wardlaw@dahp.wa.gov

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Southwest Region Office
PO Box 47775, Olympia, WA 98504-7775 • 360-407-6300

July 15, 2022

Travis Simmons, SEPA Contact
City of Sequim
152 W. Cedar Street
Sequim, WA 98382

Dear Travis Simmons:

Thank you for the opportunity to comment on the mitigated determination of nonsignificance for the Rolling Hills Planned Residential Development Project (SUB-22-002) as proposed by Sequim Washington Investments LLC. The Department of Ecology (Ecology) reviewed the environmental checklist and has the following comment(s):

SOLID WASTE MANAGEMENT: Derek Rockett (360) 407-6287

All grading and filling of land must utilize only clean fill. All other materials may be considered solid waste and permit approval may be required from your local jurisdictional health department prior to filling. All removed debris resulting from this project must be disposed of at an approved site. Contact the local jurisdictional health department for proper management of these materials.

TOXICS CLEANUP: Tim Mullin (360) 999-9589

There appears to be no listed contaminated site at or adjacent to the proposed project area. If contamination is unexpectedly encountered, please report it to meet WAC 173-340-300, via the online ERTS form:

https://ecology.wa.gov/Footer/Report-an-environmental-issue/statewide-issue-reporting-form

Please contact Tim Mullin at 360-999-9589 with any questions.

WATER QUALITY/WATERSHED RESOURCES UNIT:
Evan Wood (360) 407-7320

Erosion control measures must be in place prior to any clearing, grading, or construction. These control measures must be effective to prevent stormwater runoff from carrying soil and other pollutants into surface water or stormdrains that lead to waters of the state. Sand, silt, clay particles, and soil will damage aquatic habitat and are considered to be pollutants.

Any discharge of sediment-laden runoff or other pollutants to waters of the state is in violation of Chapter 90.48 RCW, Water Pollution Control, and WAC 173-201A, Water Quality Standards for Surface Waters of the State of Washington, and is subject to enforcement action.

Construction Stormwater General Permit:
The following construction activities require coverage under the Construction Stormwater General Permit:

1. Clearing, grading and/or excavation that results in the disturbance of one or more acres **and** discharges stormwater to surface waters of the State; and
2. Clearing, grading and/or excavation on sites smaller than one acre that are part of a larger common plan of development or sale, if the common plan of development or sale will ultimately disturb one acre or more **and** discharge stormwater to surface waters of the State.
    a) This includes forest practices (including, but not limited to, class IV conversions) that are part of a construction activity that will result in the disturbance of one or more acres, **and** discharge to surface waters of the State; and
3. Any size construction activity discharging stormwater to waters of the State that Ecology:
    a) Determines to be a significant contributor of pollutants to waters of the State of Washington.
    b) Reasonably expects to cause a violation of any water quality standard.

If there are known soil/ground water contaminants present on-site, additional information (including, but not limited to: temporary erosion and sediment control plans; stormwater pollution prevention plan; list of known contaminants with concentrations and depths found; a site map depicting the sample location(s); and additional studies/reports regarding contaminant(s)) will be required to be submitted. For additional information on contaminated construction sites, please contact Carol Serdar at Carol.Serdar@ecy.wa.gov, or by phone at (360) 742-9751.

Additionally, sites that discharge to segments of waterbodies listed as impaired by the State of Washington under Section 303(d) of the Clean Water Act for turbidity, fine sediment, high pH, or phosphorous, or to waterbodies covered by a TMDL may need to meet additional sampling and record keeping requirements. See condition S8 of the Construction Stormwater General Permit for a description of these requirements. To see if your site discharges to a TMDL or 303(d)-listed waterbody, use Ecology's Water Quality Atlas at: https://fortress.wa.gov/ecy/waterqualityatlas/StartPage.aspx.

The applicant may apply online or obtain an application from Ecology's website at: http://www.ecy.wa.gov/programs/wq/stormwater/construction/ - Application. Construction site operators must apply for a permit at least 60 days prior to discharging stormwater from construction activities and must submit it on or before the date of the first public notice.

Ecology's comments are based upon information provided by the lead agency. As such, they may not constitute an exhaustive list of the various authorizations that must be obtained or legal requirements that must be fulfilled in order to carry out the proposed action.

If you have any questions or would like to respond to these comments, please contact the appropriate reviewing staff listed above.

Department of Ecology
Southwest Regional Office

(GMP:202203327)

cc: Derek Rockett, SWM
Tim Mullin, TCP
Evan Wood, WQ
Holli Heavrin (Applicant Representative)

Olympic Region

PLANS, SPECIFICATIONS AND ESTIMATE
Review Comment Disposition Form

Project Title:	SR 101/Rolling Hills Plat	Job Charge #:	
Reviewer (name & office) Sarah Bogue, Trevor Skelton – Traffic Date of Review Comments: 7/14/22		Responses By: Date of Disposition:	

Comment No.	Sht or Pg.	Review Comment	Status Code	Designer's Response
1.	various	Consider labeling appendices for clarity.		
2.	PDF p5	Why was PM peak selected outright? While it's usually higher, the heavy commute effect of this isolated development could require consideration.		
3.	PDF p8	For Section 3.3, consider adding sentence, "WSDOT has adopted LOS "D" for urban areas; this applies to the ramp terminal intersections".		
4.	PDF p11	Consider adding a brief description of the pipeline projects.		
5.	PDF p19	In Section 5, Summary, "Intersection #12" should be "Intersection #11".		
6.				
7.				
8.				
9.				
10.				
11.				

Status Code Legend: A = Incorporated B = Open/Under Review C = Evaluated/Not Incorporated D = Beyond Scope/Not Evaluated
All "B" and "C" responses require explanatory comments.