City Hall
555 Israel Road SW
Tumwater, WA 98501-6515
Phone: 360-754-5855
Fax: 360-754-4138

DETERMINATION OF NON-SIGNIFICANCE (DNS)
TUM-22-1646
CHEVRON FUEL TANK REPLACEMENT

Description of proposal: Remove three existing underground fuel tanks and install three larger tanks.

Proponent: Andrew Bowman, Barghausen Consulting Engineers, 18215 72nd Avenue S, Kent, WA 98032

Location of proposal: 670 Trosper Rd. SW, Tumwater, WA 98512. Thurston County Assessor Parcel Number 09080091002.

Lead agency: City of Tumwater, Community Development Department.

As provided by RCW 43.21C.240 and WAC 197-11-158, the lead agency has determined that the requirements for environmental analysis, protection, and mitigation measures have been adequately addressed in the applicable development regulations and comprehensive plan adopted under RCW 36.70A and in other local, state, or federal laws or rules. Therefore, this proposal is not likely to have a probable significant adverse impact on the environment. An Environmental Impact Statement is not required under RCW 43.21C.030(2)(c), and the lead agency will not require additional mitigation measures under SEPA. 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 on request. The lead agency will not act on this proposal for 14 days from the date below. Comments must be submitted no later than February 17, 2023, by 5:00 p.m.

Date: February 3, 2023

Responsible official:

Michael Matlock, AICP
Community Development Director

Contact person: Tami Merriman, Permit Manager, 360-754-4180
555 Israel Road SW Tumwater, WA 98501

Appeals of this DNS must be made to the City Clerk, no later than February 23, 2023, by 5:00 p.m. All appeals shall be in writing, be signed by the appellant, be accompanied by a filing fee of $175, and set forth the specific basis for such appeal, error alleged and relief requested.

TUM-22-1646
Rcvd: Brittaney
11-09-2022

SEPA ENVIRONMENTAL CHECKLIST

Purpose of checklist:

Governmental agencies use this checklist to help determine whether the environmental impacts of your proposal are significant. This information is also helpful to determine if available avoidance, minimization or compensatory mitigation measures will address the probable significant impacts or if an environmental impact statement will be prepared to further analyze the proposal.

Instructions for applicants:

This environmental checklist asks you to describe some basic information about your proposal. Please answer each question accurately and carefully, to the best of your knowledge. You may need to consult with an agency specialist or private consultant for some questions. You may use "not applicable" or "does not apply" only when you can explain why it does not apply and not when the answer is unknown. You may also attach or incorporate by reference additional studies reports. Complete and accurate answers to these questions often avoid delays with the SEPA process as well as later in the decision-making process.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency to which you submit this checklist may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Instructions for Lead Agencies:

Please adjust the format of this template as needed. Additional information may be necessary to evaluate the existing environment, all interrelated aspects of the proposal and an analysis of adverse impacts. The checklist is considered the first but not necessarily the only source of information needed to make an adequate threshold determination. Once a threshold determination is made, the lead agency is responsible for the completeness and accuracy of the checklist and other supporting documents.

Use of checklist for nonproject proposals:

For nonproject proposals (such as ordinances, regulations, plans and programs), complete the applicable parts of sections A and B plus the SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS (part D). Please completely answer all questions that apply and note that the words "project," "applicant," and "property or site" should be read as "proposal," "proponent," and "affected geographic area," respectively. The lead agency may exclude (for non-projects) questions in Part B - Environmental Elements –that do not contribute meaningfully to the analysis of the proposal.

A. Background [HELP]

1. Name of proposed project, if applicable:

   Chevron Underground Storage Tank Replacement

2. Name of applicant

   Andrew Bowman / Barghausen Consulting Engineers

3. Address and phone number of applicant and contact person:

   Applicant/Contact:

   Barghausen Consulting Engineers, Inc.
   Andrew Bowman
   18215 72nd Avenue South
   Kent, WA 98032
   (425) 656-7464

   Owner:

   Chevron Products Company
   6001 Bollinger Canyon Road, L1164
   San Ramon, CA 94583

4. Date checklist prepared:

   October 20th, 2022

5. Agency requesting checklist:

   City of Tumwater

6. Proposed timing or schedule (including phasing, if applicable):

SEPA:	October 2022
Construction Permit:	May 2023
Construction Start:	June 2023
Occupancy/Grand Opening:	October 2023

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

   There are no plans for future additions or modifications to this project.

8. List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.

   Listed below are documents directly related to the environmental review of the applicant's proposal. These documents will either be made available in conjunction with this submittal, as a deferred submittal for this entitlement process, or

subsequently made available during future permitting processes, as required by County staff.

- Geotechnical Report
- Temporary Erosion and Sedimentation Control Plan
- Storm Drainage Report

9. Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.

To our knowledge there are no other applications pending agency approval for other proposals directly affecting the subject property covered by this application.

10. List any government approvals or permits that will be needed for your proposal, if known.

- City of Tumwater:
  - Building Permit
  - UST Permits

11. Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description.)

Remove and replace three (3) underground storage fuel tanks, and replace with three (3) new double wall storage tanks of 20,000, 15,000, and 12,000 gallons

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

The project parcel address is 670 Trosper Rd. SW, Tumwater, WA 98512

Section 34 Township 18 Range 2W Quarter NW SE Donation Land Claim BARNES, NELSON JR #65 DLC BEG AT THE INTERSECTIN OF THE ELY LN OF ROW CONVEYED TO PORTLAND & PUGET SOUND RR CO BY DD DATED

B. Environmental Elements [HELP]

1. *Earth* [help]

a. General description of the site:

(circle one): Flat, rolling, hilly, steep slopes, mountainous, other _____

b. What is the steepest slope on the site (approximate percent slope)? 15%

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any agricultural land of long-term commercial significance and whether the proposal results in removing any of these soils.

The developed gas station sits on land that is Nisqually loamy fine sand per the NRCS Soil Survey Map. There is no anticipated activity to remove the existing native soils.

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

There are no known surface indications or history of unstable soils in the project parcel and the immediate vicinity.

e. Describe the purpose, type, total area, and approximate quantities and total affected area of any filling, excavation, and grading proposed. Indicate source of fill.

The total area to be disturbed is 0.12 acres, with an estimated cut volume of 1,180 CY. Fill volume of 1,170 CY. Net of 10CY Cut.

f. Could erosion occur as a result of clearing, construction, or use? If so, generally describe.

Erosion is not anticipated for this construction site. Applicable erosion control measures and notes are proposed on the Civil Plans.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

Currently, the parcel is 91.5% impervious and 8.5% pervious. The site coverage will be the same in the project's developed condition.

h. Proposed measures to reduce or control erosion, or other impacts to the earth, if any:

The Plan shows erosion control measures such as temporary inlet protection and silt fence. The necessary City of Tumwater Erosion Control Notes and Sediment Erosion Control Note are also included in this plan.

2. Air [help]

a. What types of emissions to the air would result from the proposal during construction, operation, and maintenance when the project is completed? If any, generally describe and give approximate quantities if known.

Airborne particulates (dust) along with vehicular exhaust from construction equipment are the most likely short-term sources of emissions during construction activity. The primary source of long-term emissions will be from vehicular exhaust, as a byproduct of the operation for the gasoline fueling facility.

b. Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.

Aside from vehicular exhaust originating with traffic on the adjacent rights-of-way, no off-site sources of emissions and/or odors have been identified.

c. Proposed measures to reduce or control emissions or other impacts to air, if any:

Airborne particulates will be minimized through surface watering during the construction phase of the project. Construction emissions will be further reduced through emission equipment in an effort to fully comply with Washington State emission standards. During the refueling process, CARB-certified vapor recovery systems will minimize vapor release and odors.

3. Water [help]

a. Surface Water: [help]

1) Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

Barnes Lake is approximately 650 feet to the north

2) Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

To the best of our knowledge, the project will not require any work over, in, or adjacent to (within 200 feet) any of the waters described above.

3) Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.

No fill or dredge material will be placed in or removed from any waters as a result of the proposed project.

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

The proposal does not require surface water withdrawals or diversions.

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

The subject parcel is located outside the 100-year floodplain. FEMA Map 53067C0168G Flood Hazard Zones:X / AREA OF MINIMAL FLOOD HAZARD

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

The proposal does not intend and anticipate to discharge waste materials to surface waters.

b. Ground Water: [help]

1) Will groundwater be withdrawn from a well for drinking water or other purposes? If so, give a general description of the well, proposed uses and approximate quantities withdrawn from the well. Will water be discharged to groundwater? Give general description, purpose, and approximate quantities if known.

No groundwater will be withdrawn from a well for drinking or other purposes.

2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals. . . ; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

No waste material will be discharged into the ground from septic tanks or other sources.

c. Water runoff (including stormwater):

1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

Sources of runoff will include pavements, and structure rooftops. Water will be collected by an on-site conveyance system consisting of pipes and catch basins, then routed to an on-site detention system, after receiving oil control, and enhanced water quality treatment

2) Could waste materials enter ground or surface waters? If so, generally describe.

Proposed source control measures will be in place to minimize the possibility that waste materials could enter ground or surface waters.

3) Does the proposal alter or otherwise affect drainage patterns in the vicinity of the site? If so, describe.

The proposed project intends to keep the natural drainage patterns unchanged.

d. Proposed measures to reduce or control surface, ground, and runoff water, and drainage

pattern impacts, if any:

Proposed measures to reduce and control surface water runoff will include a detention facility, oil/water separators, and enhanced treatment facilities approved for use by the Western Washington Department of Ecology.

4. Plants [help]

a. Check the types of vegetation found on the site:

__X__deciduous tree: alder, maple, aspen, other
___X_evergreen tree: fir, cedar, pine, other
__X__shrubs
____grass
____pasture
____crop or grain
____ Orchards, vineyards or other permanent crops.
____ wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other
____water plants: water lily, eelgrass, milfoil, other
____other types of vegetation

b. What kind and amount of vegetation will be removed or altered?

No vegetation will be removed or altered.

c. List threatened and endangered species known to be on or near the site.

To the best of our knowledge, there are no threatened or endangered species existing on site or to be found in the immediate vicinity.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

The project does not include any landscaping.

e. List all noxious weeds and invasive species known to be on or near the site.

To the best of our knowledge, no noxious weeds or invasive species have been identified on or near the site. Any identified noxious weeds and invasive species on the site will be removed.here are no known noxious weeds or invasive species on or near the site.

5. Animals [help]

a. List any birds and other animals which have been observed on or near the site or are known to be on or near the site.

Examples include:

birds: hawk, heron, eagle, songbirds, other:
mammals: deer, bear, elk, beaver, other:
fish: bass, salmon, trout, herring, shellfish, other _____

b. List any threatened and endangered species known to be on or near the site.

Based on the Washington Department of Fish and Wildlife Priority Habitats and Species online database, there are no critical habitats on the project site.

c. Is the site part of a migration route? If so, explain.

To the best of our knowledge, the site is not part of a migration route.

d. Proposed measures to preserve or enhance wildlife, if any:

The project does not include a measures to preserve or enhance wildlife.

The site is currently hard surface pavement.

e. List any invasive animal species known to be on or near the site.

To the best of our knowledge, there are no invasive animal species living on site o

6. Energy and Natural Resources [help]

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

Electricity will continue to be used to power the site.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

The project does not affect the potential use of solar energy by adjacent properties.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

There are no energy conservation features included as part of the project.

7. Environmental Health [help]

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.

1) Describe any known or possible contamination at the site from present or past uses.

Possible sources of contamination may include incidental exposure to gasoline during refueling and previous fuel spills from the previous gas station use..

2) Describe existing hazardous chemicals/conditions that might affect project development and design. This includes underground hazardous liquid and gas transmission pipelines located within the project area and in the vicinity.

Underground storage tanks and piping associated with the existing gas station are located on site. No other hazardous chemicals or conditions have been identified.

3) Describe any toxic or hazardous chemicals that might be stored, used, or produced during the project's development or construction, or at any time during the operating life of the project.

Gasoline and diesel fuels will be stored within underground storage tanks for the operation of the fueling facility..

4) Describe special emergency services that might be required.

No new emergency services are anticipated upon completion of the project. The level of fire, police, and ambulance services would be required at a level consistent the existing facility and other developments of this type.

5) Proposed measures to reduce or control environmental health hazards, if any:

Special equipment designed to minimize the impact of failure or damage through accidents, system protocols to establish and promote regular inspection, and monitoring of facilities and equipment, plus electronic monitoring systems which provide continual oversight of fuel systems and equipment.

b. Noise

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

No existing noise from the surrounding area will affect the project.

2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

Short-term noise associated with construction activity will be limited to construction traffic and equipment. The maximum noise levels should be expected to occur within the range between 57 and 89 dBA. These construction noise impacts will be limited by City Code to certain hours of the day (typically starting at 7:00 a.m. and ending in the early evening hours on weekdays). All construction activity associated with the project will be done in full compliance with County Code requirements.

3) Proposed measures to reduce or control noise impacts, if any:

Noise impacts associated with the construction phase of the project will be limited in duration. To mitigate general noise impacts during the construction phases, measures such as using and regularly maintaining efficient mufflers and quieting devices on all construction equipment and vehicles will be taken. Construction hours will roughly be limited to the normal

8. Land and Shoreline Use [help]

a. What is the current use of the site and adjacent properties? Will the proposal affect current land uses on nearby or adjacent properties? If so, describe.

This site is surrently a gas station. The neighboring properties are commercial and retail establishments including a Walgreens and Little Cesars Pizza to the west, Panda Express to the south, and the 5 Freeway to the east.

b. Has the project site been used as working farmlands or working forest lands? If so, describe. How much agricultural or forest land of long-term commercial significance will be converted to other uses as a result of the proposal, if any? If resource lands have not been designated, how many acres in farmland or forest land tax status will be converted to nonfarm or nonforest use?

To our knowledge, the subject site has never been used as working farmlands or forest lands.

1) Will the proposal affect or be affected by surrounding working farm or forest land normal business operations, such as oversize equipment access, the application of pesticides, tilling, and harvesting? If so, how:

The project will not affect any nearby farm or forest land operations.

c. Describe any structures on the site.

A 1,994 -square-foot convenience store and 3,330-square-foot fuel dispensing canopy exist on site.

d. Will any structures be demolished? If so, what?

No structures will be demolished as part of the project.

e. What is the current zoning classification of the site?

~~Commercial Neighborhood (CN).~~ General Commercial Zoning District Chapter 18.22

f. What is the current comprehensive plan designation of the site?

~~Commercial Mixed Use.~~ General Commercial

g. If applicable, what is the current shoreline master program designation of the site?

Not applicable.

h. Has any part of the site been classified as a critical area by the city or county? If so, specify.

No part of the project site has been classified as a critical area by any jurisdiction.

i. Approximately how many people would reside or work in the completed project?

No change from the existing.

j. Approximately how many people would the completed project displace?

The project will not displace anyone.

k. Proposed measures to avoid or reduce displacement impacts, if any:

No required measures to avoid displacement of people.

L. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

The project is an improvement to an existing use that is allowed within the zone area and will remain compatible with the surrounding area.

m. Proposed measures to reduce or control impacts to agricultural and forest lands of long-term commercial significance, if any:

The project does not impact any agricultural or forest lands of long-term significance.

9. Housing [help]

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

Not applicable.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

Not applicable.

c. Proposed measures to reduce or control housing impacts, if any:

Not applicable.

10. Aesthetics [help]

a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

Not applicable for underground storage tank replacement.

b. What views in the immediate vicinity would be altered or obstructed?

The project will be designed to comply with all applicable City setback and site clearance requirements. No significant views of the immediate vicinity are expected to be altered or obstructed as a result of this project.

a. Proposed measures to reduce or control aesthetic impacts, if any:

With no aesthetic impacts identified, no mitigation measures are required or proposed. Compliance with existing design guidelines and standards reduces or controls any aesthetic impacts, which may otherwise have occurred.

11. Light and Glare [help]

a. What type of light or glare will the proposal produce? What time of day would it mainly occur?

Not applicable.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

Not applicable.

c. What existing off-site sources of light or glare may affect your proposal?

No sources of off-site light or glare will affect the project.

d. Proposed measures to reduce or control light and glare impacts, if any:

Not applicable.

12. Recreation [help]

a. What designated and informal recreational opportunities are in the immediate vicinity?

There are no known recreational opportunities in the immediate vicinity.

b. Would the proposed project displace any existing recreational uses? If so, describe.

Not applicable.

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

Not applicable.

13. Historic and cultural preservation [help]

a. Are there any buildings, structures, or sites, located on or near the site that are over 45 years old listed in or eligible for listing in national, state, or local preservation registers ? If so, specifically describe.

There are no protected buildings or structures over 45 years old on the site.

b. Are there any landmarks, features, or other evidence of Indian or historic use or occupation? This may include human burials or old cemeteries. Are there any material evidence, artifacts, or areas of cultural importance on or near the site? Please list any professional studies conducted at the site to identify such resources.

The project site is previously developed and there are no landmarks, features, or other evidence of Indian or historic use or occupation on or near the site.

c. Describe the methods used to assess the potential impacts to cultural and historic resources on or near the project site. Examples include consultation with tribes and the department of archeology and historic preservation, archaeological surveys, historic maps, GIS data, etc.

The project is previously developed and does not contain any known archaeological or culturally significant resources on or around the site.

d. Proposed measures to avoid, minimize, or compensate for loss, changes to, and disturbance to resources. Please include plans for the above and any permits that may be required.

No measures to minimize impact on cultural or historic resources are required for the project.

14. Transportation [help]

a. Identify public streets and highways serving the site or affected geographic area and describe proposed access to the existing street system. Show on site plans, if any.

The subject parcel sits on the Northeast corner of Trosper Road SW and 2nd Avenue SW. There are no foressen impacts on existing driveways along these public streets.

b. Is the site or affected geographic area currently served by public transit? If so, generally describe. If not, what is the approximate distance to the nearest transit stop?

The site is currently not served by public transit.

c. How many additional parking spaces would the completed project or non-project proposal have? How many would the project or proposal eliminate?

The amount of parking stalls is not affected by the proposed improvements.

d. Will the proposal require any new or improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities, not including driveways? If so, generally describe (indicate whether public or private).

The proposed improvements do not trigger the requirement for new/improvements to existing roads, streets, pedestrian, bicycle or state transportation facilities.

e. Will the project or proposal use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

The proposal will not use any of the above mentioned.

f. How many vehicular trips per day would be generated by the completed project or proposal? If known, indicate when peak volumes would occur and what percentage of the volume would be trucks (such as commercial and nonpassenger vehicles). What data or transportation models were used to make these estimates?

This data is not known. However, any addition to the current traffic volume is not anticipated post-construction. The improvements do not promote any additional functions of the existing gas station.

g. Will the proposal interfere with, affect or be affected by the movement of agricultural and forest products on roads or streets in the area? If so, generally describe.

The proposal will not interfere with, affect or be affected by the movements of agricultural and forest products on roads/streets in the area.

h. Proposed measures to reduce or control transportation impacts, if any:

There are no proposed measures to reduce or control transportation impacts since transportation impacts are not anticipated for this proposal.

15. Public Services [help]

a. Would the project result in an increased need for public services (for example: fire protection, police protection, public transit, health care, schools, other)? If so, generally describe.

The project would not result in an increase in public services including fire protection and police protection beyond what is currently provided for the site.

b. Proposed measures to reduce or control direct impacts on public services, if any.

None proposed.

16. Utilities [help]

a. Circle utilities currently available at the site:
electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other _____

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

All aforementioned utilities are presently available and in use on site. Utilities related to underground fuel tanks are proposed to be replaced.

C. Signature [HELP]

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: _____

Name of signee _____

Position and Agency/Organization _____

Date Submitted: _____

D. Supplemental sheet for nonproject actions [HELP]

(**IT IS NOT NECESSARY** to use this sheet for project actions)

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substances; or production of noise?

Proposed measures to avoid or reduce such increases are:

2. How would the proposal be likely to affect plants, animals, fish, or marine life?

Proposed measures to protect or conserve plants, animals, fish, or marine life are:

3. How would the proposal be likely to deplete energy or natural resources?

Proposed measures to protect or conserve energy and natural resources are:

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?

Proposed measures to protect such resources or to avoid or reduce impacts are:

5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?

Proposed measures to avoid or reduce shoreline and land use impacts are:

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

Proposed measures to reduce or respond to such demand(s) are:

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.

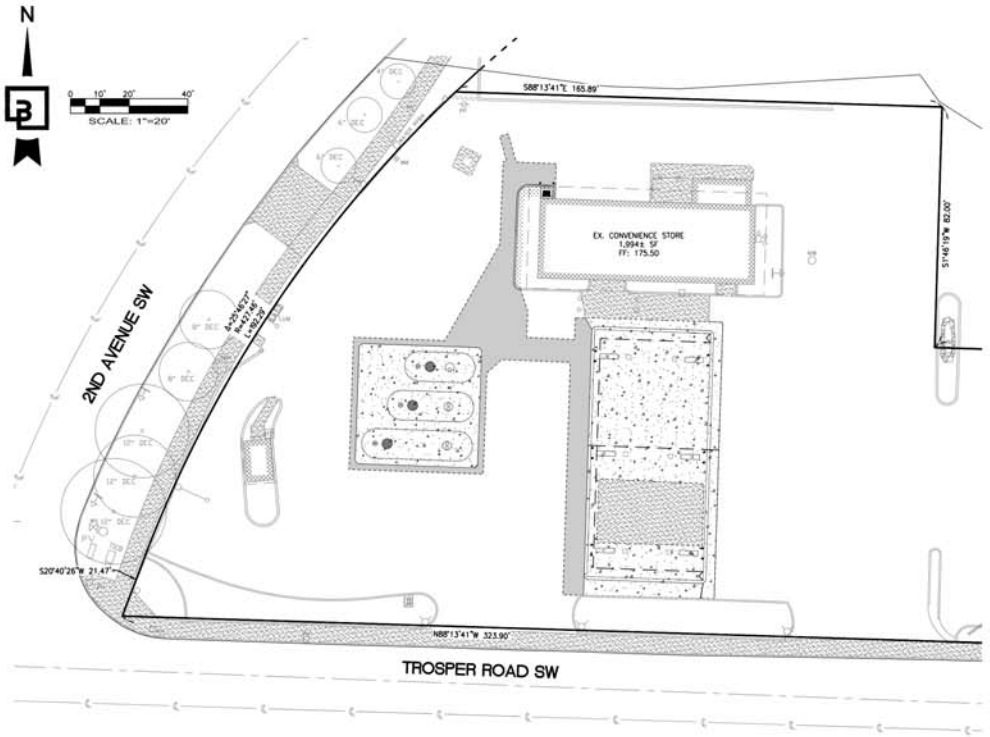
COVER SHEET
FOR
CHEVRON TANK REPLACEMENT
SECTION 34, TOWNSHIP 18 NORTH, RANGE 2 WEST W.M.
CITY OF TUMWATER, THURSTON COUNTY, WASHINGTON

Chevron Northwest Region

811 Know what's below. Call before you dig. Dial 811

GENERAL SITE NOTES:

1. THE CONTRACTOR SHALL OBTAIN AND HAVE AVAILABLE COPIES OF THE APPLICABLE GOVERNING AGENCY STANDARDS AT THE JOB SITE DURING THE RELATED CONSTRUCTION OPERATIONS.
2. CONTRACTOR SHALL ENSURE THAT ALL NECESSARY PERMITS HAVE BEEN OBTAINED PRIOR TO COMMENCING WORK.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION, DIMENSION AND DEPTH OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION WHETHER SHOWN ON THESE PLANS OR NOT. UTILITIES OTHER THAN THOSE SHOWN MAY EXIST ON THIS SITE. ONLY THOSE UTILITIES WITH EVIDENCE OF THEIR INSTALLATION VISIBLE AT GROUND SURFACE OR SHOWN ON RECORD DRAWING PROVIDED BY OTHERS ARE SHOWN HEREON. EXISTING UNDERGROUND UTILITY LOCATIONS SHOWN ARE APPROXIMATE ONLY AND ARE SUBJECT TO A DEGREE OF UNKNOWN VARIATION. SOME UNDERGROUND LOCATIONS SHOWN HEREON MAY HAVE BEEN TAKEN FROM PUBLIC RECORDS. BARGHAUSEN CONSULTING ENGINEERS, INC. ASSUMES NO LIABILITY FOR THE ACCURACY OF PUBLIC RECORDS OR RECORDS OF OTHERS. IF CONFLICTS SHOULD OCCUR, THE CONTRACTOR SHALL CONSULT BARGHAUSEN CONSULTING ENGINEERS, INC., TO RESOLVE ALL PROBLEMS PRIOR TO PROCEEDING WITH CONSTRUCTION.
4. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO REVIEW ALL OF THE DRAWINGS AND SPECIFICATIONS ASSOCIATED WITH THE PROJECT WORK SCOPE PRIOR TO THE INITIATION OF CONSTRUCTION. SHOULD THE CONTRACTOR FIND A CONFLICT WITH THE DOCUMENTS RELATIVE TO THE SPECIFICATIONS OR THE RELATIVE CODES, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE PROJECT ENGINEER OF RECORD IN WRITING PRIOR TO THE START OF CONSTRUCTION. FAILURE BY THE CONTRACTOR TO NOTIFY THE PROJECT ENGINEER SHALL CONSTITUTE ACCEPTANCE OF FULL RESPONSIBILITY BY THE CONTRACTOR TO COMPLETE THE SCOPE OF WORK AS DEFINED BY THE DRAWINGS AND IN FULL COMPLIANCE WITH LOCAL REGULATIONS AND CODES.
5. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE APPROPRIATE UTILITIES INVOLVED PRIOR TO CONSTRUCTION.
6. INSPECTION OF SITE WORK WILL BE ACCOMPLISHED BY A REPRESENTATIVE OF THE GOVERNING JURISDICTION. INSPECTION OF PRIVATE FACILITIES WILL BE ACCOMPLISHED BY A REPRESENTATIVE OF THE OWNER. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE INSPECTOR 24 HOURS IN ADVANCE OF BACKFILLING ALL CONSTRUCTION.
7. PRIOR TO ANY CONSTRUCTION OR DEVELOPMENT ACTIVITY THE CONTRACTOR SHALL CONTACT THE AGENCY AND/OR UTILITY INSPECTION PERSONNEL AND ARRANGE ANY REQUIRED PRE-CONSTRUCTION MEETING(S). CONTRACTOR SHALL PROVIDE ONE WEEK MIN. ADVANCE NOTIFICATION TO OWNER, FIELD ENGINEER AND ENGINEER OF PRE-CONSTRUCTION MEETINGS.
8. THE CONTRACTOR IS RESPONSIBLE FOR WORKER AND SITE SAFETY AND SHALL COMPLY WITH THE LATEST OSHA STANDARDS AND REGULATIONS, OR ANY OTHER AGENCY HAVING JURISDICTION FOR EXCAVATION AND TRENCHING PROCEDURES. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE "MEANS AND METHODS" REQUIRED TO MEET THE INTENT AND PERFORMANCE CRITERIA OF OSHA, AS WELL AS ANY OTHER ENTITY THAT HAS JURISDICTION FOR EXCAVATION AND/OR TRENCHING PROCEDURES.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE SAFEGUARDS, SAFETY DEVICES, PROTECTIVE EQUIPMENT, FLAGGERS, AND ANY OTHER NEEDED ACTIONS TO PROTECT THE LIFE, HEALTH, AND SAFETY OF THE PUBLIC, AND TO PROTECT PROPERTY IN CONNECTION WITH THE PERFORMANCE OF WORK COVERED BY THE CONTRACTOR. ANY WORK WITHIN THE TRAVELED RIGHT-OF-WAY THAT MAY INTERRUPT NORMAL TRAFFIC FLOW SHALL REQUIRE AT LEAST ONE FLAGGER FOR EACH LANE OF TRAFFIC AFFECTED.
10. PROTECTIVE MEASURES SHALL BE TAKEN BY THE CONTRACTOR TO PROTECT ALL ADJACENT PUBLIC AND PRIVATE PROPERTIES AT ALL TIMES DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF ALL EXISTING UTILITY SERVICES THAT ARE TO REMAIN OPERATIONAL WITHIN THE CONSTRUCTION AREA WHETHER SHOWN OR NOT SHOWN ON THE PLANS.
11. TWO (2) COPIES OF THESE APPROVED PLANS MUST BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS. ONE (1) SET WITH RECORDS OF AS-BUILT INFORMATION SHALL BE SUBMITTED TO BARGHAUSEN CONSULTING ENGINEERS, INC. AT COMPLETION OF PROJECT.
12. CONTRACTOR SHALL OBTAIN SERVICES OF A LICENSED LAND SURVEYOR TO STAKE HORIZONTAL CONTROL FOR ALL NEW IMPROVEMENTS. STAKING CONTROL SHALL BE TAKEN FROM ELECTRONIC PLAN FILES PROVIDED BY BARGHAUSEN CONSULTING ENGINEERS, INC.
13. CONTRACTOR SHALL REQUEST FROM BARGHAUSEN CONSULTING ENGINEERS INC., PRIOR TO ANY CONSTRUCTION STAKING OR CONSTRUCTION WORK, A FORMAL CONSTRUCTION RELEASE PLAN SET OR SPECIFIC RELEASE IN WRITING. THE APPROVED AGENCY PERMIT DRAWINGS WILL NOT BE CONSIDERED CONSTRUCTION RELEASE PLANS BY BARGHAUSEN CONSULTING ENGINEERS, INC UNLESS BARGHAUSEN CONSULTING ENGINEERS, INC HAS GIVEN A FORMAL WRITTEN RELEASE OR ISSUED A CONSTRUCTION RELEASE PLAN SET.



VICINITY MAP: TUMWATER, WA

PROJECT INFORMATION:

ADDRESS:
670 TROSPER ROAD SW
TUMWATER, WA 98512

TAX PARCEL NUMBER:
09080091002

LOT AREA:
51,611± S.F. (1.18± AC.)

TOTAL LAND DISTURBED = 5,038 SF (0.12 AC)

LEGAL DESCRIPTION

THAT PORTION OF THE NELSON BARNES DONATION LAND CLAIM NO. 65, IN SECTION 34, TOWNSHIP 18 NORTH, RANGE 2 WEST, W.M., IN THURSTON COUNTY, WASHINGTON, DESCRIBED AS FOLLOWS:

BEGINNING AT THE INTERSECTION OF THE NORTH MARGIN OF SSH NO. 1-W (TROSPER ROAD) WITH THE SOUTHEASTERLY MARGIN OF FRONTAGE SERVICE ROAD AS CONVEYED TO THE STATE OF WASHINGTON BY
DEEDS DATED RESPECTIVELY OCTOBER 13, 1959 AND JULY 27, 1960 AND RECORDED UNDER RECORDING NOS. 618728 AND 631451;
THENCE NORTH 18°56'00" EAST ALONG SAID SOUTHEASTERLY MARGIN 22.11 FEET TO THE POINT OF CURVATURE OF A 427.46 FOOT RADIUS CURVE TO THE RIGHT;
THENCE ALONG AND CURVE AND SOUTHEASTERLY MARGIN 433.46 FEET TO A POINT OF TANGENCY;
THENCE CONTINUING ALONG SAID SOUTHEASTERLY MARGIN NORTH 76°56'00" EAST 171.18 FEET TO A POINT ON THE NORTHWESTERLY MARGIN OF A TRACT CONVEYED TO THE STATE OF WASHINGTON BY DEED
DATED OCTOBER 20, 1954 AND RECORDED UNDER RECORDING NO. 538962, SAID NORTHWESTERLY MARGIN BEING A 279.18 FOOT RADIUS CURVE CONCAVE TO THE SOUTHEAST WITH A RADIAL THROUGH SAID POINT BEARING SOUTH 46°46'00" EAST;
THENCE SOUTHWESTERLY ALONG SAID NORTHWESTERLY MARGIN 210.82 FEET TO A POINT OF TANGENCY;
THENCE SOUTH 00°02'00" EAST 64.20 FEET;
THENCE SOUTH 44°58'00" WEST 116.25 FEET TO THE NORTH MARGIN OF SSH NO. 1-W (TROSPER ROAD);
THENCE SOUTH 89°58'00" WEST ALONG SAID MARGIN 323.92 FEET TO THE POINT OF BEGINNING;

EXCEPTING THEREFROM THAT PORTION CONVEYED TO WSH AND COMPANY BY DEED RECORDED UNDER RECORDING NO. 969999;

EXCEPTING THAT PORTION CONVEYED TO WASHINGTON STATE BY INSTRUMENT RECORDED MAY 30, 1984 UNDER RECORDING NO. 8405300092;

ALSO EXCEPT THAT PORTION CONVEYED TO THE CITY OF TUMWATER BY STATUTORY WARRANTY DEED RECORDED JANUARY 24, 2001 UNDER RECORDING NO. 3332887.

HORIZONTAL DATUM

NAD 83(2011) WASHINGTON SOUTH STATE PLANE COORDINATES PER GPS OBSERVATIONS

VERTICAL DATUM

NGVD 29 – THURSTON COUNTY CONTROL POINT NO. 325A

LITTLEROCK ROAD/ 2ND AVE & 54TH (TROSPER ROAD) CENTER OF INTERSECTION. FND SURFACE MON W/ 2 1/2 INCH BRASS CAP: (N20 32 05E/9.15') & FND 3 INCH BRASS CAP(S88 04 10E/ 6.93') FROM THIS POSITION. ELEV: 176.06'

OWNER
CHEVRON STATION, INC.
575 MARKET STREET
SAN FRANCISCO, CA 94015

ENGINEER
BARGHAUSEN CONSULTING ENGINEERS, INC.
18215 72ND AVE. SOUTH
KENT, WA 98032
TEL: (425) 251-6222
CONTACT: CHRIS JENSEN, P.E.

SURVEYOR
TERRAFORMA DESIGN GROUP, INC.
5027 5157 AVENUE SW
SEATTLE, WA 98136
TEL: (206) 923-0590
CONTACT: PEDRO DEGUZMAN, P.E.

FLOOD ZONE
FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) INFORMATION: FIRM (FLOOD INSURANCE RATE MAP) MAP NO. 53067C0168G DATED MARCH 15, 2018. THE SUBJECT PROPERTY IS IN ZONE X, AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

UTILITY CONFLICT NOTE:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION, DIMENSION, AND DEPTH OF ALL EXISTING UTILITIES WHETHER SHOWN ON THESE PLANS OR NOT BY POTHOLING THE UTILITIES AND SURVEYING THE HORIZONTAL AND VERTICAL LOCATION PRIOR TO CONSTRUCTION. THIS SHALL INCLUDE CALLING UTILITY LOCATE @ 1-800-332-2344 AND THEN POTHOLING ALL OF THE EXISTING UTILITIES AT LOCATIONS OF NEW UTILITY CROSSINGS TO PHYSICALLY VERIFY WHETHER OR NOT CONFLICTS EXIST. LOCATIONS OF SAID UTILITIES AS SHOWN ON THESE PLANS ARE BASED UPON THE UNVERIFIED PUBLIC INFORMATION AND ARE SUBJECT TO VARIATION. IF CONFLICTS SHOULD OCCUR, THE CONTRACTOR SHALL CONSULT BARGHAUSEN CONSULTING ENGINEERS, INC. TO RESOLVE ALL PROBLEMS PRIOR TO PROCEEDING WITH CONSTRUCTION.

SURVEY DISCLAIMER:
BOUNDARY AND TOPOGRAPHIC SURVEY HAVE BEEN PROVIDED BY TERRAFORMA DESIGN GROUP, INC. BARGHAUSEN CONSULTING ENGINEERS, INC. DOES NOT WARRANT THE ACCURACY OR COMPLETENESS OF THE EXISTING INFORMATION SHOWN. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE INFORMATION SHOWN AND IF ANY ERRORS OR DISCREPANCIES EXIST, BARGHAUSEN CONSULTING ENGINEERS, INC. SHALL BE NOTIFIED PRIOR TO ANY CONSTRUCTION.

MONUMENT PROTECTION NOTE:
CONTRACTOR SHALL FIELD LOCATE ALL MONUMENTS WITHIN THE AREA OF DISTURBANCE PRIOR TO CONSTRUCTION AND PROTECT FROM DISTURBANCE/DESTRUCTION TO THE MAXIMUM EXTENT FEASIBLE. IF IT IS NECESSARY TO REMOVE OR REPLACE A MONUMENT DURING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE LOCAL JURISDICTION HAVING AUTHORITY (RCW 58.24.040) AND BE FULLY RESPONSIBLE FOR OBTAINING PERMITS FROM THE WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES PRIOR TO DISTURBANCE, DESTRUCTION, OR RELOCATION (WAC 332-120). APPLICATIONS MUST BE COMPLETED BY A REGISTERED LAND SURVEYOR AND MAY BE OBTAINED FROM THE WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES:

WASHINGTON STATE DEPARTMENT OF NATURAL RESOURCES
PUBLIC LAND SURVEY OFFICE
1111 WASHINGTON STREET S.E.
P.O. BOX 47060
OLYMPIA, WASHINGTON 98504-7060
(206) 902-1190

UPON COMPLETION OF CONSTRUCTION, ALL MONUMENTS DISPLACED, REMOVED, OR DESTROYED THAT ARE ABLE TO BE REPLACED, SHALL BE REPLACED BY A REGISTERED LAND SURVEYOR AT THE COST AND AT THE DIRECTION OF THE CONTRACTOR PURSUANT TO THESE REGULATIONS. THE APPROPRIATE FORMS FOR REPLACEMENTS OF SAID MONUMENTATION SHALL ALSO BE THE RESPONSIBILITY OF THE CONTRACTOR.

SHEET INDEX:

ESTIMATED EARTHWORK QUANTITIES:
CUT: 1,180 CY
FILL: 1,170 CY
NET: 10 CY (CUT)
AREA TO BE DISTURBED = 0.12 AC
EARTHWORK QUANTITIES ARE APPROXIMATE AND HIGHLY DEPENDANT ON SOIL CONDITIONS ENCOUNTERED DURING CONSTRUCTION. CONTRACTOR SHOULD PERFORM INDEPENDENT ESTIMATE FOR BIDDING.

No.	Date	By	Cust. Appr.	Revision
2	11/7/22	JEF	ADK	CRJ	PERMIT SUBMITTAL
1	10/25/22	JEF	ADK	CRJ	90% RELEASE

Title: COVER SHEET
FOR
CHEVRON 90956 TUMWATER
670 TROSPER ROAD SW
TUMWATER WA, 98512

For: CHEVRON STATION, INC.
575 MARKET STREET
SAN FRANCISCO, CA 94015

CHRIS JENSEN — STATE OF WASHINGTON — 47677 — REGISTERED PROFESSIONAL ENGINEER
11/7/22

Scale: Horizontal 1" = 20' Vertical N.A.
Designed CMS Drawn CMS Checked ADK Approved CRJ Date 10/5/22

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

Job Number 21463
Sheet C1.0 5 of

P:\21000s\21463\Engineering\21463-0.dwg 10/7/2022 2:19 PM AMHITE

TESC AND DEMOLITON PLAN
FOR
CHEVRON TANK REPLACEMENT
SECTION 34, TOWNSHIP 18 NORTH, RANGE 2 WEST W.M.
CITY OF TUWMATER, THURSTON COUNTY, WASHINGTON

Chevron Northwest Region

811 Know what's below. Call before you dig. Dial 811

STANDARD TANK EXCAVATION NOTE:

TANK EXCAVATIONS SHALL BE PER OSHA REQUIREMENTS. TANK EXCAVATIONS THAT REQUIRE SHORING SHALL BE ENGINEERED AND PERMITTED SEPARATELY AND SHALL BE THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR. CONTRACTOR SHALL MAINTAIN SAFE TEMPORARY SLOPE CONFIGURATIONS. UNSUPPORTED VERTICAL SLOPES OF CUTS DEEPER THAN 4 FEET ARE NOT RECOMMENDED.

CAUTION:

POTENTIAL UTILITY CONFLICT. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING AND NEW UTILITIES PRIOR TO CONSTRUCTION. SEE UTILITY CONFLICT NOTE. THE EXISTING WATER, STORM, AND SANITARY SEWER SERVICE SHOWN IS APPROXIMATE, BASED ON GIS AND SEWER CARD RECORDS. THE GENERAL CONTRACTOR SHALL "POTHOLE" THE EXISTING UTILITIES TO VERIFY THE DIAMETER AND LOCATION (INCLUDING ELEVATIONS) PRIOR TO CONSTRUCTION. ANY DISCREPANCIES IN THE LOCATION OF THE EXISTING PIPE OR INCOMPATIBILITY OF THE DESIGN SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE OWNER'S REPRESENTATIVE, AND BARGHAUSEN CONSULTING ENGINEERS, INC. (425-251-6222).

(1) DEMOLITION CALLOUTS:

1. DEMOLISH EXISTING CONCRETE/ASPHALT PAVEMENT AND DISPOSE OFF-SITE.
2. DEMOLISH EXISTING UNDERGROUND STORAGE TANK AND DISPOSE OFF-SITE. TANKS SHOULD BE DECOMMISSIONED, REMOVED AND DISPOSED OF PER APPLICABLE DEPARTMENT OF ECOLOGY AND CITY OF TUWMATER/THURSTON COUNTY REQUIREMENTS. CONFIRM WITH OWNER DECOMMISSIONING OF MONITORING WELLS AROUND THE UNDERGROUND STORAGE TANK. SEE STANDARD TANK EXCAVATION NOTE THIS SHEET.
3. REMOVE EXISTING FUEL DISPENSER (TYP. OF 6) AND DISPOSE OFF-SITE.
4. APPROXIMATE LIMITS OF SAWCUT.
5. REMOVE EXISTING BOLLARD (TYP. OF 12) TO BE RE-INSTALLED. SEE SHEET C3.0 FOR LOCATION.
6. REMOVE EXISTING FUEL ISLANDS (TYP. OF 6) AND DISPOSE OF OFF-SITE.
7. PROTECT EXISTING CANOPY (TYP. OF 6) TO REMAIN AND BE PROTECTED.
8. DEMOLISH EXISTING BARRIER CURB TO EXTENTS SHOWN AND DISPOSE OFF-SITE.
9. PROTECT EXISTING BARRIER CURB TO REMAIN.
10. REMOVE EXISTING VENT RISERS AND DISPOSE OFF-SITE.
11. REMOVE EXISTING UNDERGROUND FUEL PIPING AND DISPOSE OFF-SITE.
12. EXISTING SIDE SEWER AND SANITARY CLEANOUT TO REMAIN AND BE PROTECTED. CONTRACTOR TO VERIFY LOCATION AND HORIZONTAL DEPTH PRIOR TO CONSTRUCTION.
13. PROTECT EXISTING STORM LINE TO REMAIN. CONTRACTOR TO VERIFY LOCATION AND HORIZONTAL DEPTH PRIOR TO CONSTRUCTION.
14. PROTECT EXISTING WATER LINE TO REMAIN. CONTRACTOR TO VERIFY LOCATION AND HORIZONTAL DEPTH PRIOR TO CONSTRUCTION.
15. PROTECT EXISTING POWER LINE TO REMAIN. CONTRACTOR TO VERIFY LOCATION AND HORIZONTAL DEPTH PRIOR TO CONSTRUCTION.
16. PROTECT EXISTING CONCRETE/ASPHALT PAVEMENT TO REMAIN.
17. REMOVE EXISTING STORM LINE TO THE EXTENT SHOWN ON THIS PLAN.
18. PROTECT EXISTING CLEANOUT TO REMAIN. CONTRACTOR TO POTHOLE AND VERIFY LOCATION OF PIPING.

EROSION CONTROL CALLOUTS:

1. INSTALL TEMPORARY INLET PROTECTION PER CITY OF TUMWATER STANDARD FIGURE 8B. INSTALL CATCH BASIN INSERT AT ALL EXISTING DRAINAGE INLETS AS REQUIRED TO PREVENT SILT-LADEN WATER FROM ENTERING STORM DRAINAGE SYSTEM (TYP). CONTRACTOR TO CONFIRM EXACT LOCATION OF STORM DRAINS. SEE DETAIL 4/C5.0 AND CITY OF TUMWATER EROSION CONTROL NOTES THIS SHEET.
2. APPROXIMATE LIMITS OF DISTURBANCE.
3. CONSTRUCTION STAGING AREA. CONTRACTOR TO USE THIS AREA FOR TEMPORARY STOCKPILE STORAGE AND CONCRETE WASHOUT. ADJUST SIZE AND LOCATION OF AREA AS NEEDED DURING CONSTRUCTION.
4. TEMPORARY CONSTRUCTION FENCE. CONTRACTOR TO INSTALL 6' HIGH CHAINLINK FENCING WITH 15' GATE ALONG PERIMETER OF CONSTRUCTION SITE AS INDICATED ON PLANS, AND AS DIRECTED BY OWNER, CONTRACTOR AND AUTHORITY HAVING JURISDICTION.
5. INSTALL FILTER FENCE PER CITY OF TUMWATER STANDARD FIGURE 82. SEE DETAIL 5/C5.0 AND CITY OF TUMWATER EROSION CONTROL NOTES THIS SHEET.

CONSTRUCTION SEQUENCE:

1. SCHEDULE A PRECONSTRUCTION MEETING WITH CITY OF TUMWATER AND OBTAIN ALL REQUIRED PERMITS.
2. GIVE PROPER NOTICE TO ADJACENT PROPERTY OWNERS. VERIFY NOTICE REQUIREMENTS WITH DEVELOPER.
3. OBTAIN UTILITY LOCATES.
4. ESTABLISH CLEARING AND GRADING LIMITS.
5. POTHOLE EX. UTILITIES FOR VERTICAL AND HORIZONTAL LOCATIONS
6. SCHEDULE AN EROSION CONTROL INSPECTION WITH THE CITY.
7. GRADING ACTIVITIES CAN BEGIN, ONLY AFTER ALL DRAINAGE AND EROSION CONTROL MEASURES ARE IN PLACE.
8. MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH CHAPTER 5 OF THE CITY OF TUMWATER DEVELOPMENT GUIDE.

TESC LEGEND:

- CATCH BASIN PROTECTION
- LIMITS OF DISTURBANCE
- ASPHALT TO BE REMOVED
- CONCRETE TO BE REMOVED
- TEMPORARY CONSTRUCTION FENCE
- FILTER FENCE

CITY OF TUMWATER EROSION CONTROL NOTES:

SILT FENCES:

1. FILTER FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID USE OF JOINTS. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6-INCH OVERLAP, AND SECURELY FASTENED AT BOTH ENDS TO POST.
2. POSTS SHALL BE SPACED A MAXIMUM OF 6 FEET APART AND DRIVEN SECURELY INTO THE GROUND (MINIMUM OF 30 INCHES).
3. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 8 INCHES WIDE AND 12 INCHES DEEP ALONG THE LINE OF POSTS AND UPSLOPE FROM THE BARRIER.
4. WHEN STANDARD STRENGTH FILTER FABRIC IS USED, A WIRE MESH SUPPORT FENCE SHALL BE FASTENED SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY-DUTY WIRE STAPLES AT LEAST 1 INCH LONG, TIE WIRES OR HOG RINGS. THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF 4 INCHES AND SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
5. THE STANDARD STRENGTH FILTER FABRIC SHALL BE STAPLED OR WIRED TO THE FENCE, AND 20 INCHES OF THE FABRIC SHALL BE EXTENDED INTO THE TRENCH. THE FABRIC SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE. FILTER FABRIC SHALL NOT BE STAPLED TO EXISTING TREES.
6. WHEN EXTRA-STRENGTH FILTER FABRIC AND CLOSER POST SPACING IS USED, THE WIRE MESH SUPPORT FENCE MAY BE ELIMINATED. IN SUCH A CASE, THE FILTER FABRIC IS STAPLED OR WIRED DIRECTLY TO THE POSTS WITH ALL OTHER PROVISIONS OF ABOVE NOTES APPLYING.
7. FILTER FABRIC FENCES SHALL NOT BE REMOVED BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.
8. FILTER FABRIC FENCES SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.

INLET PROTECTION:

1. PLACE CONCRETE BLOCKS LENGTHWISE ON THEIR SIDES IN A SINGLE ROW AROUND THE PERIMETER OF THE INLET, SO THAT THE OPEN ENDS FACE OUTWARD, NOT UPWARD. THE ENDS OF ADJACENT BLOCKS SHALL ABUT. THE HEIGHT OF THE BARRIER CAN BE VARIED, DEPENDING ON DESIGN NEEDS, BY STACKING COMBINATIONS OF BLOCKS THAT ARE 4 INCHES, AND 12 INCHES WIDE. THE ROW OF BLOCKS SHALL BE AT LEAST 12 INCHES BUT NO GREATER THAN 24 INCHES HIGH.
2. PLACE WIRE MESH OVER THE OUTSIDE VERTICAL FACE (OPEN END) OF THE CONCRETE BLOCKS TO PREVENT STONE FROM BEING WASHED THROUGH THE BLOCKS. USE HARDWARE CLOTH OR COMPARABLE WIRE MESH WITH 1/2-INCH OPENINGS.
3. PILE STONE AGAINST THE WIRE MESH TO THE TOP OF THE BLOCKS. USE 3/4-TO 3-INCH GRAVEL
4. PLACE WIRE MESH OVER THE DROP INLET SO THAT THE WIRE EXTENDS A MINIMUM OF 1 FT BEYOND EACH SIDE OF THE INLET STRUCTURE. USE HARDWARE CLOTH OR COMPARABLE WIRE MESH WITH 1/2-INCH OPENINGS. IF MORE THAN ONE STRIP OF MESH IS NECESSARY, OVERLAP THE STRIPS. PLACE FILTER FABRIC OVER WIRE MESH.
5. PLACE 3/4-INCH GRAVEL OVER THE WIRE MESH. THE DEPTH OF STONE SHALL BE AT LEAST 12 INCHES OVER THE ENTIRE INLET OPENING. EXTEND THE STONE BEYOND THE INLET OPENING AT LEAST 18 INCHES ON ALL SIDES.
6. IF THE STONE FILTER BECOMES CLOGGED WITH SEDIMENT, THE STONES MUST BE PULLED AWAY FROM THE INLET AND CLEANED OR REPLACED.

SEDIMENT CONTROL NOTE:

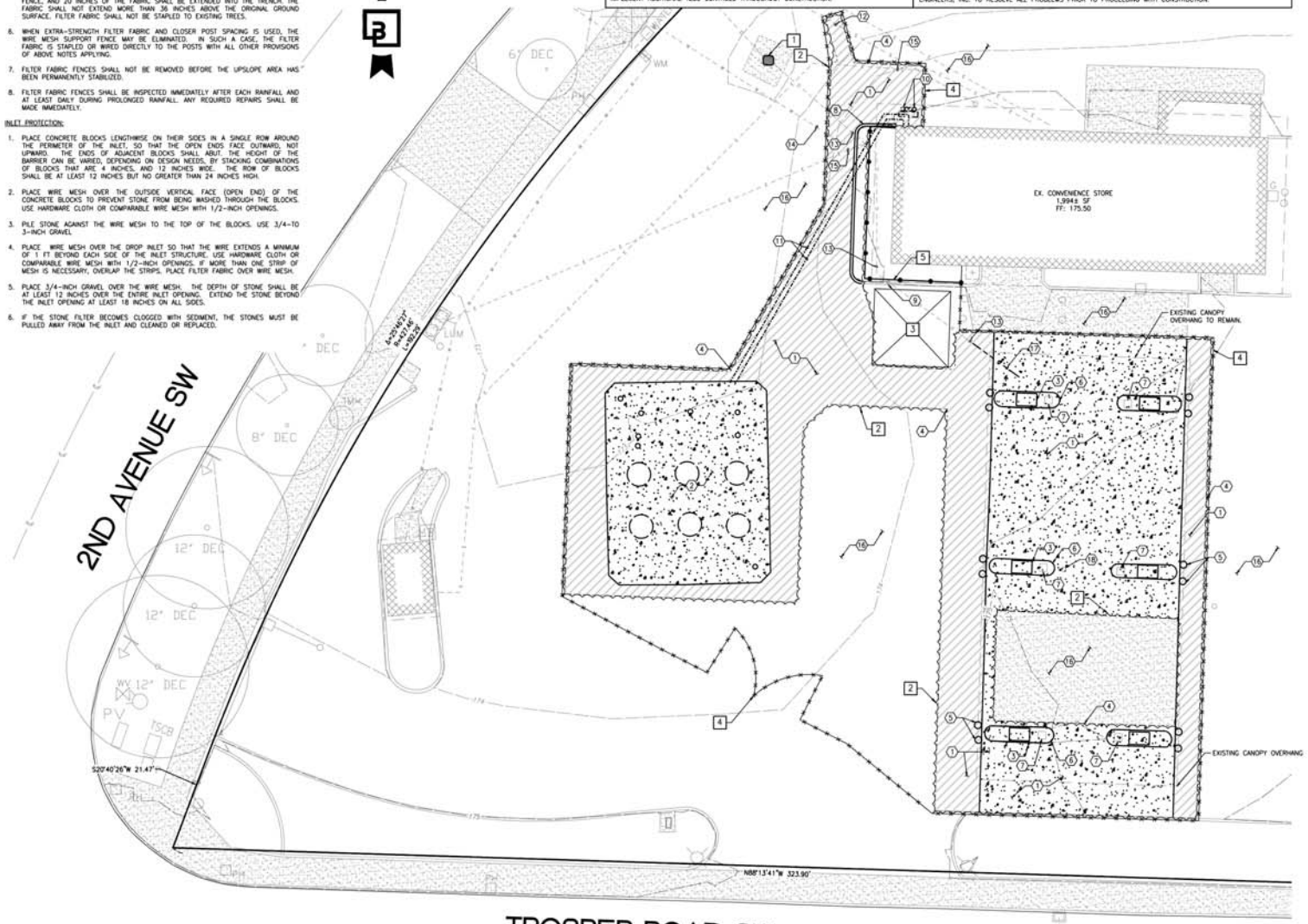
CONTRACTOR TO SLOPE SITE AND MAINTAIN SEDIMENT CONTROL BMP'S TO ENSURE THAT THE SITE CONTAINS ALL SURFACE STORM WATER RUNOFF AND SEDIMENT. THE PROPERTY SHALL BE BOUND BY SILT FENCE AS NECESSARY. ADDITIONAL TESC CONTROL MAY BE REQUIRED. WHAT HAS BEEN DEPICTED ON THESE PLANS IS ONLY THE MINIMUM REQUIRED TO CONTAIN SILT LADEN STORM WATER. CONTRACTOR MAY BE REQUIRED TO MODIFY OR IMPLEMENT ADDITIONAL TESC CONTROLS THROUGHOUT CONSTRUCTION.

UTILITY NOTE:

ALL UNDERGROUND UTILITIES AND SERVICES TO REMAIN UNDISTURBED UNLESS OTHERWISE SHOWN. ALL CLEANOUTS AND OTHER UTILITIES WITHIN REPLACED ASPHALT OR CONCRETE TO BE RAISED TO FINISHED GRADE.

UTILITY CONFLICT NOTE:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION, DIMENSION, AND DEPTH OF ALL EXISTING UTILITIES WHETHER SHOWN ON THESE PLANS OR NOT BY POTHOLING THE UTILITIES AND SURVEYING THE HORIZONTAL AND VERTICAL LOCATION PRIOR TO CONSTRUCTION. THIS SHALL INCLUDE CALLING UTILITY LOCATE @ 1-800-332-2344 AND THEN POTHOLING ALL OF THE EXISTING UTILITIES AT LOCATIONS OF NEW UTILITY CROSSINGS TO PHYSICALLY VERIFY WHETHER OR NOT CONFLICTS EXIST. LOCATIONS OF SAID UTILITIES AS SHOWN ON THESE PLANS ARE BASED UPON THE UNVERIFIED PUBLIC INFORMATION AND ARE SUBJECT TO VARIATION. IF CONFLICTS SHOULD OCCUR, THE CONTRACTOR SHALL CONSULT BARGHAUSEN CONSULTING ENGINEERS, INC. TO RESOLVE ALL PROBLEMS PRIOR TO PROCEEDING WITH CONSTRUCTION.



No.	Date	By	Chk	Appr	Revision
2	11/7/22	JEF	ADK	CRJ	PERMIT SUBMITTAL
1	10/5/22	JEF	ADK	CRJ	80% RELEASE

Title: TESC AND DEMOLITON PLAN FOR CHEVRON 90956 TUMWATER 670 TROSPER ROAD SW TUMWATER WA. 98512

For: CHEVRON STATION, INC. 575 MARKET STREET SAN FRANCISCO, CA 94015

CHRIS JENSEN — STATE OF WASHINGTON — 47677 — REGISTERED PROFESSIONAL ENGINEER — 11/7/22

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

Designed CMS | Drawn CMS | Checked ADK | Approved CRJ | Date 10/5/22
Scale: Horizontal 1" = 10' | Vertical N.A.

Job Number 21463
Sheet C2.0 5 of

P:\21000s\21463\Engineering\21463-EN.dwg 10/7/2022 2:23 PM ASMITE

SITE PLAN
FOR
CHEVRON TANK REPLACEMENT
SECTION 34, TOWNSHIP 18 NORTH, RANGE 2 WEST W.M.
CITY OF TUMWATER, THURSTON COUNTY, WASHINGTON

Chevron Northwest Region

811 Know what's below. Call before you dig. Dial 811

①-CONSTRUCTION NOTES: SITE PLAN

1. PROPOSED FUEL DISPENSER (TYP. OF 6). SEE FUEL PLANS FOR MORE DETAILS.
2. PROPOSED UNDERGROUND STORAGE TANKS (UST). UST CONCRETE SLAB TO MATCH PAVEMENT SECTION AND MATERIAL AS SPECIFIED PER OWNER. SEE FUEL PLANS FOR TANK DETAILS.
3. PROPOSED CONCRETE PAVEMENT. SECTION AND MATERIALS PER OWNER. SEE SITE PLAN NOTE THIS SHEET.
4. PROPOSED ASPHALT PAVEMENT. SECTION AND MATERIALS PER OWNER. SEE SITE PLAN NOTE THIS SHEET.
5. SAWCUT LINE, TYP.
6. PROPOSED BARRIER CURB TO MATCH EXISTING BARRIER CURB IN-KIND. SEE DETAIL THIS SHEET.
7. RE-INSTALL EXISTING BOLLARDS (TYP. OF 12).
8. PROPOSED TANK VENT RISER. SEE FUEL PLANS FOR MORE DETAILS.
9. PROPOSED BOLLARD (TYP. OF 2).
10. PROPOSED CONCRETE SWALE. SEE SHEET C4.0 FOR PROPOSED ELEVATIONS.
11. EXISTING CANOPY COLUMN (TYP. OF 6) TO REMAIN AND BE PROTECTED.

STANDARD TANK EXCAVATION NOTE:

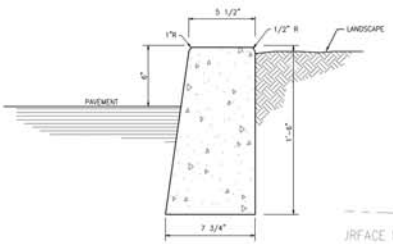
TANK EXCAVATIONS SHALL BE PER OSHA REQUIREMENTS. TANK EXCAVATIONS THAT REQUIRE SHORING SHALL BE ENGINEERED AND PERMITTED SEPARATELY AND SHALL BE THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR. CONTRACTOR SHALL MAINTAIN SAFE TEMPORARY SLOPE CONFIGURATIONS. UNSUPPORTED VERTICAL SLOPES OF CUTS DEEPER THAN 4 FEET ARE NOT RECOMMENDED.

SITE PLAN NOTE:

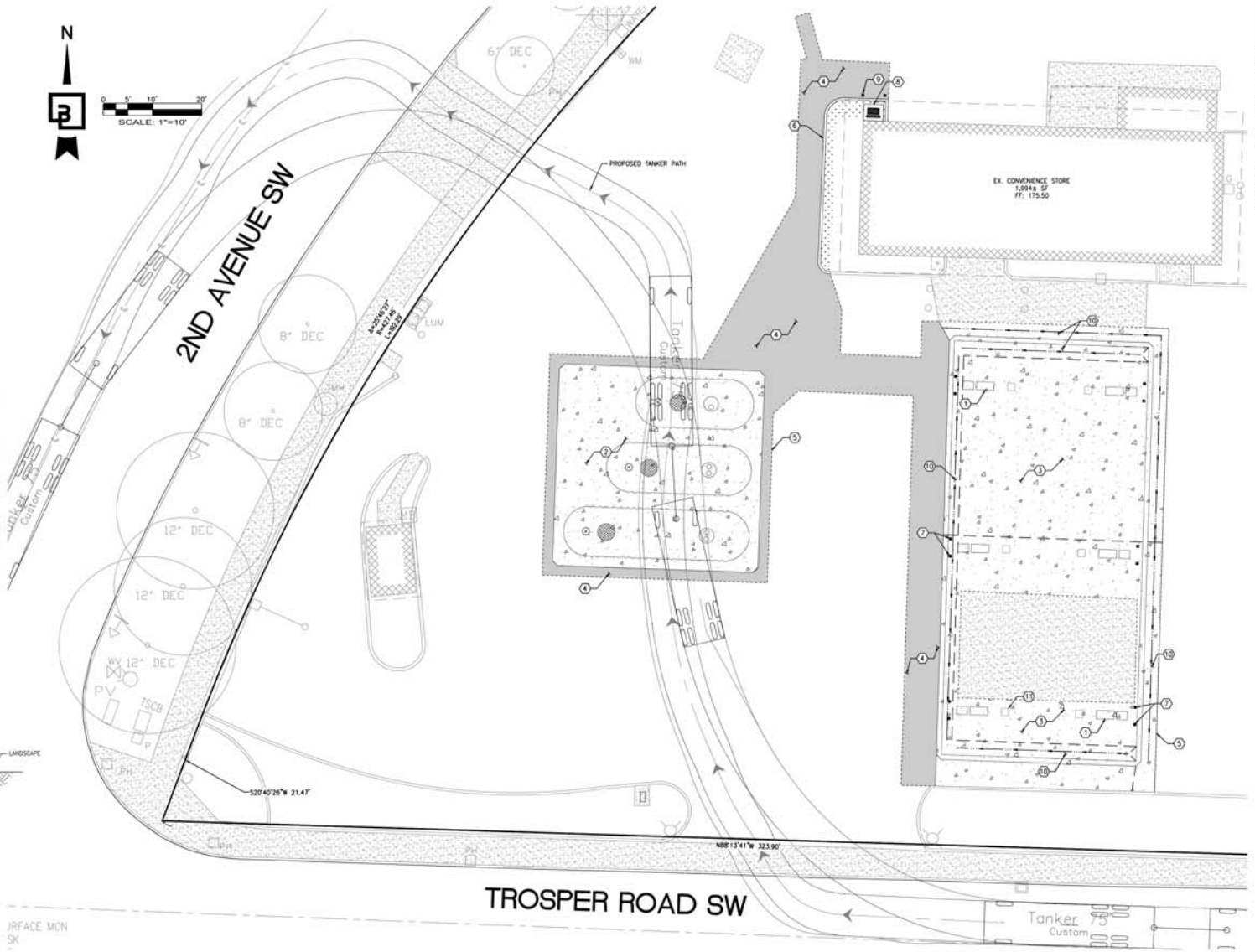
CONTRACTOR SHALL CONFIRM CONCRETE AND ASPHALT PAVEMENT SECTION, SUBGRADE PREPARATION, AND SPECIFICATIONS WITH OWNER PRIOR TO CONSTRUCTION. IT IS RECOMMENDED TO GET A FORMAL GEOTECHNICAL DESIGN FOR CONCRETE AND ASPHALT PAVEMENT SECTIONS SPECIFIC TO THIS SITE PRIOR TO CONSTRUCTION.

HORIZONTAL CONTROL NOTE:

A BOUNDARY AND TOPOGRAPHIC SURVEY HAS NOT BEEN COMPLETED FOR THIS SITE. THEREFORE, HORIZONTAL LOCATION VIA SURVEY IS NOT WARRANTED. CONTRACTOR SHALL HAVE ALL PROPOSED IMPROVEMENTS DEPICTED ON THESE PLANS STAKED FOR CONSTRUCTION USING SPATIAL LOCATION DEPICTED IN THESE DRAWINGS USING EXISTING STRUCTURES AS BASIS OF BEARINGS. BARGHAUSEN CONSULTING ENGINEERS SHALL IMMEDIATELY BE NOTIFIED OF ANY DISCREPANCIES PRIOR TO THE START OF CONSTRUCTION.



ONSITE BARRIER CURB
NOT TO SCALE



No.	By	Date	Description
2	JDF	11/7/22	PERMIT SUBMITTAL
1	JDF	10/25/22	80% RELEASE

Title: SITE PLAN
FOR
CHEVRON 90956 TUMWATER
670 TROSPER ROAD SW
TUMWATER WA, 98512

For: CHEVRON STATION, INC.
575 MARKET STREET
SAN FRANCISCO, CA 94015

CHRIS JENSEN — STATE OF WASHINGTON — 47637 — REGISTERED PROFESSIONAL ENGINEER — 11/7/22

Scale: Horizontal 1" = 10' Vertical N.A.
Designed CMS Drawn CMS Checked ADM Approved CRJ Date 10/5/22

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

Job Number 21463
Sheet C3.0 5 of

P:\21000s\21463\Engineering\21463-A.dwg 11/7/2022 4:11 PM ABAITE

GRADING AND UTILITY PLAN
FOR
CHEVRON TANK REPLACEMENT
SECTION 34, TOWNSHIP 18 NORTH, RANGE 2 WEST W.M.
CITY OF TUWMATER, THURSTON COUNTY, WASHINGTON

Chevron
Northwest Region

811
Know what's below. Call before you dig. Dial 811

UTILITY CONFLICT NOTE:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION, DIMENSION, AND DEPTH OF ALL EXISTING UTILITIES WHETHER SHOWN ON THESE PLANS OR NOT BY POTHOLING THE UTILITIES AND SURVEYING THE HORIZONTAL AND VERTICAL LOCATION PRIOR TO CONSTRUCTION. THIS SHALL INCLUDE CALLING UTILITY LOCATE @ 811 AND THEN POTHOLING ALL OF THE EXISTING UTILITIES AT LOCATIONS OF NEW UTILITY CROSSINGS TO PHYSICALLY VERIFY WHETHER OR NOT CONFLICTS EXIST. LOCATIONS OF SAID UTILITIES AS SHOWN ON THESE PLANS ARE BASED UPON THE UNVERIFIED PUBLIC INFORMATION AND ARE SUBJECT TO VARIATION. IF CONFLICTS SHOULD OCCUR, THE CONTRACTOR SHALL NOTIFY BARGHAUSEN CONSULTING ENGINEERS, INC. TO RESOLVE ALL PROBLEMS PRIOR TO PROCEEDING WITH CONSTRUCTION.

(#) -UTILITY POTHOLING NOTE:
THE CIRCLED LOCATIONS ARE REQUIRED TO BE POTHOLED TO VERIFY VERTICAL AND HORIZONTAL LOCATION OF EXISTING UTILITY AND/OR POTENTIAL CONFLICTS WITH EXISTING UTILITIES. POTHOLING SHALL BE PERFORMED PRIOR TO INSTALLING ANY PROPOSED UTILITIES. CONTRACTOR SHALL NOTIFY BARGHAUSEN CONSULTING ENGINEERS, INC. OF ANY CONFLICTS.

◇# - SANITARY STRUCTURE NOTES:
1. PROPOSED CONNECTION TO EXISTING SEWER LINE. CONTRACTOR TO POTHOLE AND VERIFY EXISTING HORIZONTAL AND VERTICAL LOCATION, PIPE SIZE, MATERIAL AND CONDITION PRIOR TO CONSTRUCTION. CONTRACTOR SHALL PROVIDE FITTING/ADAPTERS AS NECESSARY TO MAKE CONNECTION AS SHOWN. CONTRACTOR SHALL CONFIRM POSITIVE DRAINAGE BY VERIFYING EXISTING/PROPOSED INVERT ELEVATIONS PRIOR TO CONSTRUCTION. IT MAY BE NECESSARY TO ADJUST POINT OF CONNECTION TO EXISTING SEWER. NOTIFY BARGHAUSEN CONSULTING ENGINEERS IF POSITIVE DRAINAGE CAN NOT BE ACHIEVED.
2. FUELING AREA OIL/WATER SEPARATOR. (OLD CASTLE PRECAST OW660-SA OR APPROVED EQUAL). SEE DETAIL 1/C5.0.
3. INSTALL 1 - 6" GATE VALVE (MJ).
4. PROPOSED SANITARY TYPE 1 CATCH BASIN PER CITY WASHINGTON DEPARTMENT OF TRANSPORTATION STANDARD PLAN B-5.20-03. SEE DETAIL 2/C5.0.
5. PROPSOED SANITARY CLEANOUT PER CITY OF TUMWATER STANDARD PLAN NO. SW-05. SEE DETAIL 3/C5.0.

(#) - SANITARY STRUCTURE NOTES:
1. PROPOSED CONNECTION TO EXISTING STORM LINE. CONTRACTOR TO POTHOLE AND VERIFY EXISTING HORIZONTAL AND VERTICAL LOCATION, PIPE SIZE, MATERIAL AND CONDITION PRIOR TO CONSTRUCTION. CONTRACTOR SHALL PROVIDE FITTING/ADAPTERS AS NECESSARY TO MAKE CONNECTION AS SHOWN. CONTRACTOR SHALL CONFIRM POSITIVE DRAINAGE BY VERIFYING EXISTING/PROPOSED INVERT ELEVATIONS PRIOR TO CONSTRUCTION. IT MAY BE NECESSARY TO ADJUST POINT OF CONNECTION TO EXISTING SEWER. NOTIFY BARGHAUSEN CONSULTING ENGINEERS OF ANY DISCREPANCIES AND/OR DEVIATIONS FROM WHAT IS SHOWN.

GRADING NOTES:
1. ALL SPOT ELEVATIONS SHOWN ARE TO FINISH SURFACE (TOP OF ASPHALT OR TOP OF CONCRETE PAVEMENT, NOT TOP OF CURB/SIDEWALK) UNLESS OTHERWISE NOTED. (TA = TOP OF ASPHALT, TC = TOP OF CONCRETE SIDEWALK/CURB, ME = MATCH EXISTING ELEVATIONS, FC = FLUSH CURB, FL = FLOW LINE, GB = GRADE BREAK, TPI = TOP OF ISLAND)
2. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL PROPOSED GRADES IN RELATIONSHIP TO SURVEYED BASIS OF ELEVATION.
3. FILL MATERIAL AND COMPACTION SHALL CONFORM TO CITY OF TUMWATER REQUIREMENTS.
4. CONTRACTOR TO PROTECT AND MAINTAIN EROSION CONTROL FACILITIES DURING GRADING OPERATIONS.
5. CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH CITY OF TUMWATER REQUIREMENTS.
6. CONTRACTOR TO RAISE AND ADJUST PROPOSED SANITARY SEWER CLEANOUTS/GREASE INTERCEPTOR LIDS TO FINAL GRADE AS NECESSARY. CATCH BASINS WITHIN ADA ACCESSIBLE PATHS SHALL BE ADJUSTED TO FINAL ELEVATIONS IN COMPLIANCE WITH CURRENT ADA REQUIREMENTS.
7. CONTRACTOR TO RAISE AND ADJUST ALL EXISTING AND PROPOSED CATCH BASIN RIMS TO FINAL GRADE AS NECESSARY. CATCH BASINS WITHIN ADA ACCESSIBLE PATHS SHALL BE ADJUSTED TO FINAL ELEVATIONS IN COMPLIANCE WITH CURRENT ADA STANDARDS.
8. CONTRACTOR TO ORDER LOCATES AND FIELD VERIFY ALL UTILITIES PRIOR TO CONSTRUCTION TO ENSURE THAT UTILITY CONFLICTS DO NOT EXIST. CONTRACTOR TO REVIEW UTILITY ASBUILTS IN ORDER TO VERIFY EXISTING UTILITY LOCATIONS. CONTRACTOR SHALL POTHOLE ALL POTENTIAL UTILITY CONFLICTS PRIOR TO CONSTRUCTION. NOTIFY BARGHAUSEN CONSULTING ENGINEERS, INC. OF ANY CONFLICTS.

STANDARD TANK EXCAVATION NOTE:
TANK EXCAVATIONS SHALL BE PER OSHA REQUIREMENTS. TANK EXCAVATIONS THAT REQUIRE SHORING SHALL BE ENGINEERED AND PERMITTED SEPARATELY AND SHALL BE THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR. CONTRACTOR SHALL MAINTAIN SAFE TEMPORARY SLOPE CONFIGURATIONS. UNSUPPORTED VERTICAL SLOPES OF CUTS DEEPER THAN 4 FEET ARE NOT RECOMMENDED.

CAUTION:
POTENTIAL UTILITY CONFLICT. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING AND NEW UTILITIES PRIOR TO CONSTRUCTION. SEE UTILITY CONFLICT NOTE. THE EXISTING WATER, STORM, AND SANITARY SEWER SERVICE SHOWN IS APPROXIMATE, BASED ON GIS AND SEWER CARD RECORDS. THE GENERAL CONTRACTOR SHALL "POTHOLE" THE EXISTING UTILITIES TO VERIFY THE DIAMETER AND LOCATION (INCLUDING ELEVATIONS) PRIOR TO CONSTRUCTION. ANY DISCREPANCIES IN THE LOCATION OF THE EXISTING PIPE OR INCOMPATIBILITY OF THE DESIGN SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE OWNER'S REPRESENTATIVE, AND BARGHAUSEN CONSULTING ENGINEERS, INC. (425-251-6222).

CAUTION:
POTENTIAL UTILITY CONFLICT. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING AND NEW UTILITIES PRIOR TO CONSTRUCTION. SEE UTILITY CONFLICT NOTE. THE EXISTING WATER, STORM, AND SANITARY SEWER SERVICE SHOWN IS APPROXIMATE, BASED ON GIS AND SEWER CARD RECORDS. THE GENERAL CONTRACTOR SHALL "POTHOLE" THE EXISTING UTILITIES TO VERIFY THE DIAMETER AND LOCATION (INCLUDING ELEVATIONS) PRIOR TO CONSTRUCTION. ANY DISCREPANCIES IN THE LOCATION OF THE EXISTING PIPE OR INCOMPATIBILITY OF THE DESIGN SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE OWNER'S REPRESENTATIVE, AND BARGHAUSEN CONSULTING ENGINEERS, INC. (425-251-6222).

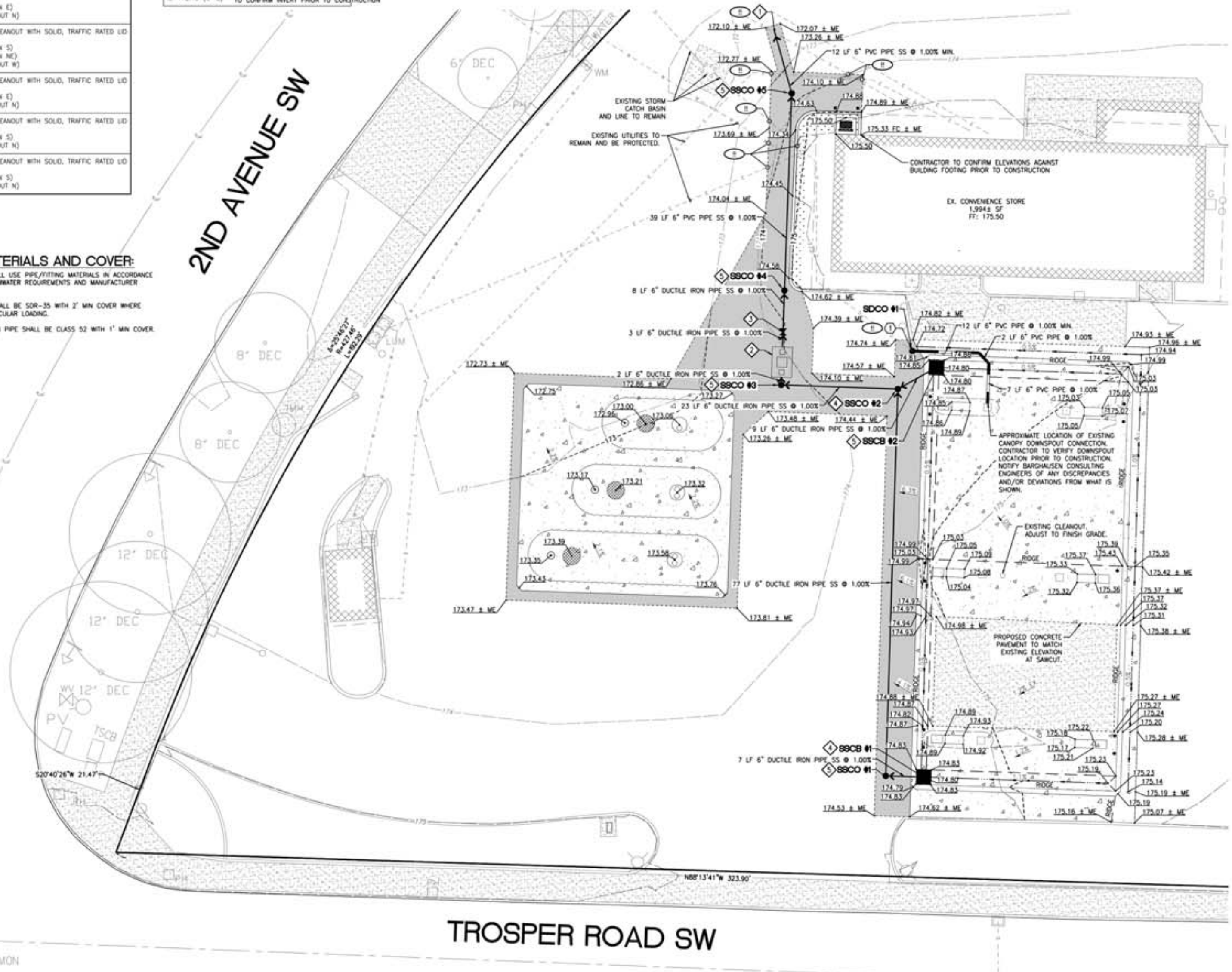
SANITARY STRUCTURE TABLE
◇2 OWS, RIM=173.81 IE=171.31 (6" IN S) IE=170.81 (6" OUT N)
SSCB #1, TYPE 1, W/ STANDARD GRATED LID RIM=174.80 IE=172.40 (6" OUT W)
SSCB #2, TYPE 1, W/ STANDARD GRATED LID RIM=174.80 IE=171.65 (6" OUT SW)
SSCO #1, 6" CLEANOUT WITH SOLID, TRAFFIC RATED LID RIM=174.63 IE=172.32 (6" IN E) IE=172.32 (6" OUT N)
SSCO #2, 6" CLEANOUT WITH SOLID, TRAFFIC RATED LID RIM=174.59 IE=171.56 (6" IN S) IE=171.56 (6" IN NE) IE=171.56 (6" OUT W)
SSCO #3, 6" CLEANOUT WITH SOLID, TRAFFIC RATED LID RIM=173.76 IE=171.33 (6" IN E) IE=171.33 (6" OUT N)
SSCO #4, 6" CLEANOUT WITH SOLID, TRAFFIC RATED LID RIM=174.36 IE=170.70 (6" IN S) IE=170.70 (6" OUT N)
SSCO #5, 6" CLEANOUT WITH SOLID, TRAFFIC RATED LID RIM=173.68 IE=170.31 (6" IN S) IE=170.31 (6" OUT N)

STORM STRUCTURE TABLE
SDCO #1, 6" CLEANOUT WITH SOLID, TRAFFIC RATED LID RIM=174.70 IE=172.19 (6" E) NOTE: MATCH EXISTING ELEVATIONS CONTRACTOR TO CONFIRM INVERT PRIOR TO CONSTRUCTION

PIPE MATERIALS AND COVER:
CONTRACTOR SHALL USE PIPE/FITTING MATERIALS IN ACCORDANCE WITH CITY OF TUMWATER REQUIREMENTS AND MANUFACTURER SPECIFICATIONS.

ALL PVC PIPE SHALL BE SDR-35 WITH 2' MIN COVER WHERE SUBJECT TO VEHICULAR LOADING.

ALL DUCTILE IRON PIPE SHALL BE CLASS 52 WITH 1' MIN COVER.



2	11/7/22	JDF	ADW	CRJ		PERMIT SUBMITTAL
1	10/5/22	JDF	ADW	CRJ		BID RELEASE
No.	Date	By	Ckd.	Appr.		Revision

Title: GRADING AND UTILITY PLAN
FOR
CHEVRON 90956 TUMWATER
670 TROSPER ROAD SW
TUMWATER WA, 98512

For: CHEVRON STATION, INC.
575 MARKET STREET
SAN FRANCISCO, CA 94015

CHRIS JENSEN, STATE OF WASHINGTON, 47671, REGISTERED PROFESSIONAL ENGINEER 11/7/22

Scale: Horizontal 1" = 10' Vertical N.A.

Designed CMS Drawn CMS Checked ADW Approved CRJ Date 10/5/22

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222 barghausen.com

Job Number 21463
Sheet C4.0 of 5

P:\21000s\21463\engineering\21463-GU.dwg 10/7/2022 3:21 PM AWHITE

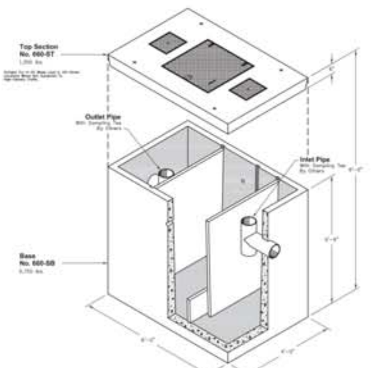
CONSTRUCTION NOTES AND DETAILS
FOR
CHEVRON TANK REPLACEMENT
SECTION 34, TOWNSHIP 18 NORTH, RANGE 2 WEST W.M.
CITY OF TUWMATER, THURSTON COUNTY, WASHINGTON

Chevron Northwest Region

811 Know what's below. Call before you dig. Dial 811

Oldcastle Precast® AUBURN — Delivering Reliability

660-SA OIL WATER SEPARATOR
450 Gallon Capacity



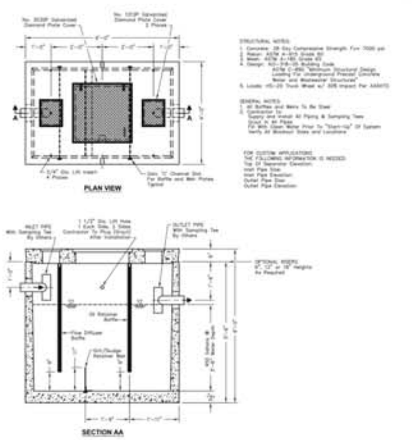
Non Skid Covers Available
FOR DETAILS, SEE REVERSE>>

134 © 1976-2016 Oldcastle Precast, Inc.

opauburn.com

Oldcastle Precast® — Delivering Reliability

660-SA

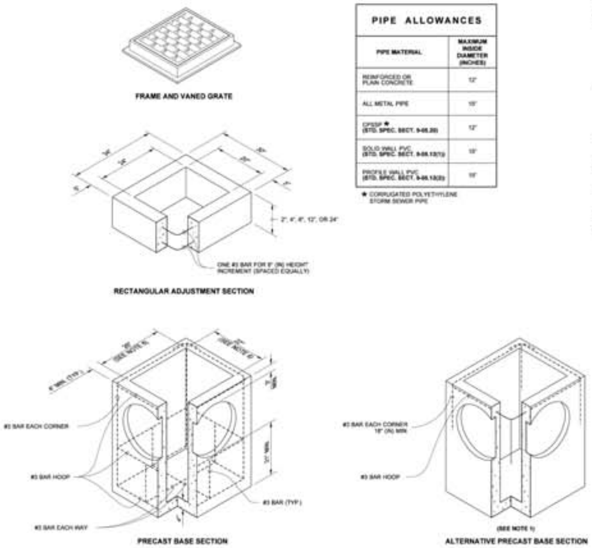


SCALE: 1/2"=1'-0"

134.1 © 1976-2016 Oldcastle Precast, Inc.

opauburn.com

1 C5.0 **OIL/WATER SEPARATOR**
SCALE: NOT TO SCALE



PIPE ALLOWANCES	
PIPE MATERIAL	MAXIMUM INSIDE DIAMETER (INCHES)
REINFORCED OR PLAIN CONCRETE	12"
ALL METAL PIPE	15"
CPSSP ★ (STD. SPEC. SECT. 9-05.20)	12"
SOLID WALL PVC (STD. SPEC. SECT. 9-05.12(1))	15"
PROFILE WALL PVC (STD. SPEC. SECT. 9-05.12(2))	15"

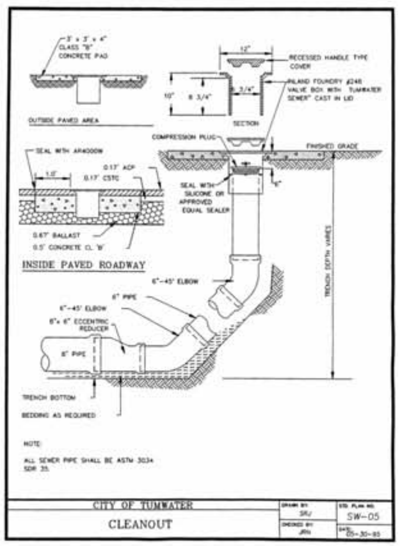
★ CORRUGATED POLYETHYLENE STORM SEWER PIPE

NOTES

1. As acceptable alternatives to the rebar shown in the **PRECAST BASE SECTION**, fibers (placed according to the Standard Specifications), or wire mesh having a minimum area of 0.12 square inches per foot shall be used with the minimum required rebar shown in the **ALTERNATIVE PRECAST BASE SECTION**. Wire mesh shall not be placed in the knockouts.
2. The knockout diameter shall not be greater than 20" (in). Knockouts shall have a wall thickness of 2" (in) minimum to 2.5" (in) maximum. Provide a 1.5" (in) minimum gap between the knockout wall and the outside of the pipe. After the pipe is installed, fill the gap with joint mortar in accordance with **Standard Specification Section 9-04.3**.
3. The maximum depth from the finished grade to the lowest pipe invert shall be 5' (ft).
4. The frame and grate may be installed with the flange down, or integrally cast into the adjustment section with flange up.
5. The Precast Base Section may have a rounded floor, and the walls may be sloped at a rate of 1 : 24 or steeper.
6. The opening shall be measured at the top of the **Precast Base Section**.
7. All pickup holes shall be grouted full after the basin has been placed.

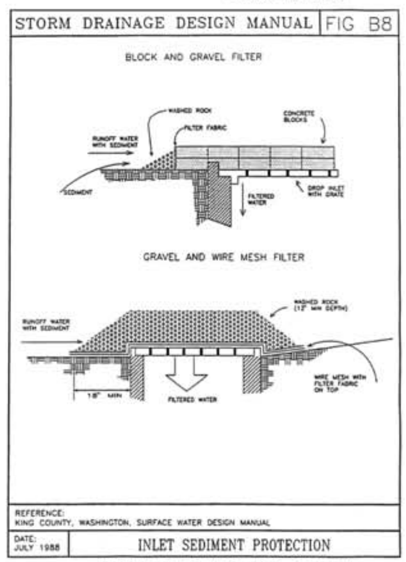
CATCH BASIN TYPE 1
STANDARD PLAN B-5.20-03
SHEET 1 OF 1 SHEET
APPROVED FOR PUBLICATION
Roark, Steve
Washington State Department of Transportation

2 C5.0 **CATCH BASIN DETAIL**
SCALE: NOT TO SCALE

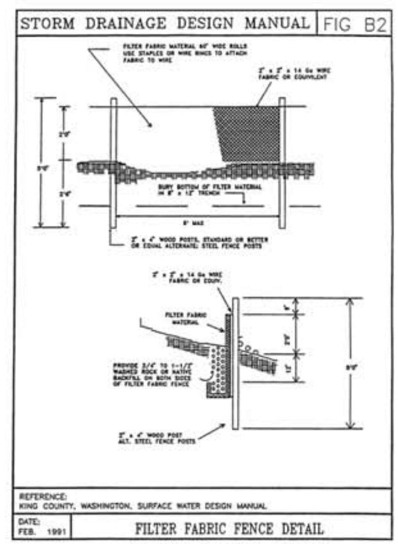


OUTSIDE PAVED AREA
INSIDE PAVED ROADWAY
RECESSED HANDLE TYPE COVER
INLAND FOUNDRY #248 VALVE BOX WITH TUMWATER SEWER CAST IN LID
COMPRESSION PLUG
FINISHED GRADE
SEAL WITH SILICONE OR APPROVED EQUAL SEALER
6"-45° ELBOW
6" PIPE
6"x 6" ECCENTRIC REDUCER
TRENCH DEPTH VARIES
TRENCH BOTTOM
BEDDING AS REQUIRED
NOTE:
ALL SEWER PIPE SHALL BE ASTM 3034 SDR 35
CITY OF TUMWATER
CLEANOUT
SW-05

3 C5.0 **SANITARY SEWER 6" CLEANOUT**
NOT TO SCALE



4 C5.0 **INLET PROTECTION DETAIL**
SCALE: NOT TO SCALE



5 C5.0 **FILTER FENCE DETAIL**
SCALE: NOT TO SCALE

No.	Date	By	Ckd.	Appr.	Revision
1	10/5/22	JDF	ADW	CRJ	BID RELEASE
2	11/7/22	JDF	ADW	CRJ	PERMIT SUBMITTAL

Title: CONSTRUCTION NOTES AND DETAILS FOR CHEVRON 90956 TUMWATER 670 TROSPER ROAD SW TUMWATER WA, 98512

For: CHEVRON STATION, INC. 575 MARKET STREET SAN FRANCISCO, CA 94015

11/7/22

Scale: Horizontal N.A. Vertical N.A.

Designed CWS
Drawn CWS
Checked ADW
Approved CRJ
Date 10/5/22

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

Job Number 21463

Sheet C5.0 of 5

P:\21000s\21463\engineering\21463-D.dwg 3/26/2021 8:58 AM ABHITE

BARGHAUSEN

November 8, 2022

City of Tumwater
Community Development
555 Israel Road SW
Tumwater, WA 98501

RE: Building Permit Application and UST Installation Submittal Checklist
Chevron
670 Trosper Road S.W., Tumwater, Washington 98512
Our Job No. 21463

On behalf of Chevron, Barghausen Consulting Engineers, Inc. respectfully requests that the City of Tumwater initiate review of the enclosed Building Permit Application and Underground Storage Tank Installation Submittal Checklist.

Enclosed are the following documents and plans for your review and routing:

Building Permit:

1. One (1) Building Permit Application
2. One (1) Underground Storage Tank Submittal Checklist
3. One (1) Set of Civil Drawings
4. One (1) Underground Storage Tank Plans
5. One (1) Stormwater Site Plan
6. One (1) SEPA checklist

Should you have any questions or require additional information, please contact me at 425-251-6222 x7212 or via email at abowman@barghausen.com.

Sincerely,

Andrew Bowman
Assistant Planner

AB/jk
21835t.001
enc: As Noted
cc: Nick Wecker, Barghausen Consulting Engineers, Inc.

Chevron

S.S. # 90956

670 TROSPER ROAD SW
TUMWATER, WA 98512

FUEL SYSTEM REPLACEMENT

VICINITY MAP — NOT TO SCALE

INDEX OF DRAWINGS

MARK	DATE	REVISIONS	INITIAL

MARK	DATE	REVISIONS	INITIAL

Chevron

670 TROSPER ROAD SW
TUMWATER, WA
CHEVRON STATION - FUEL SYSTEM REPLACEMENT

COVER SHEET
UNDERGROUND STORAGE
TANK BLEND SYSTEM

Berghausen Consulting Engineers, Inc.

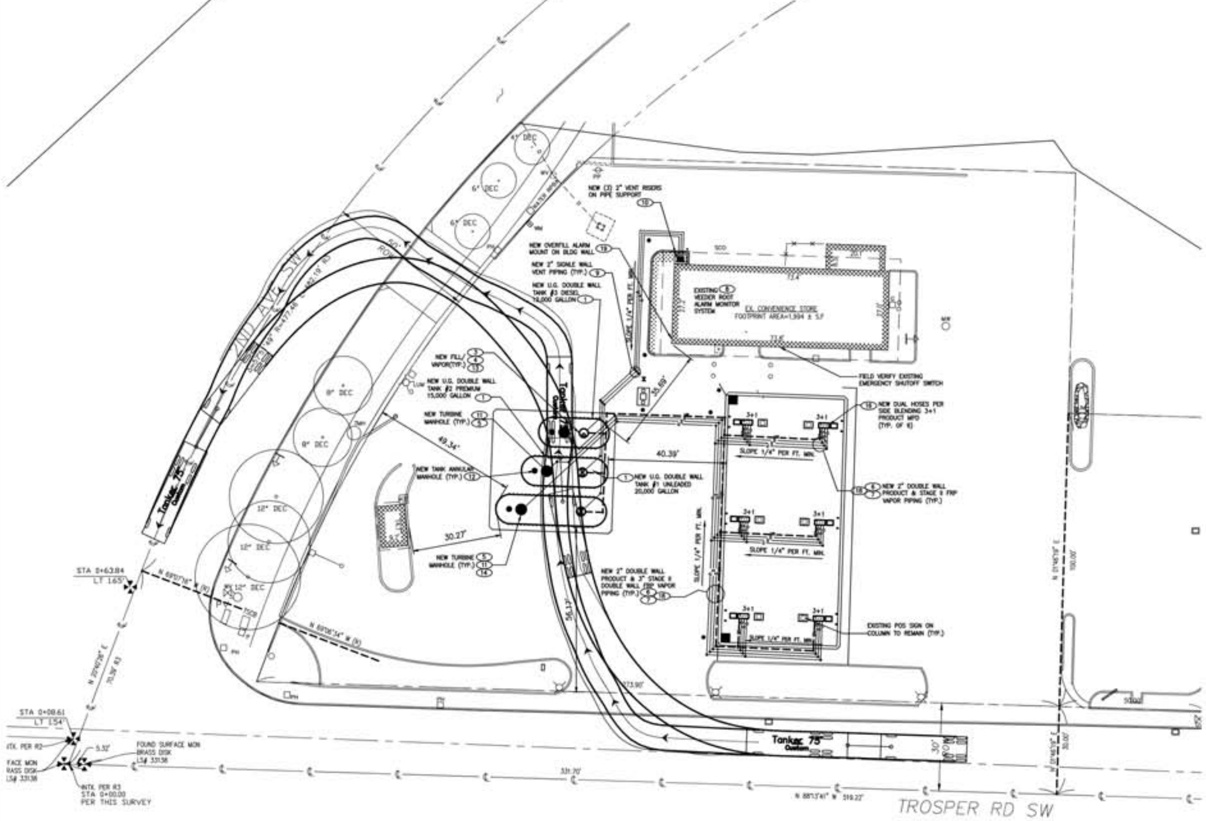
MILESTONES	INITIAL	DATE
PRELIMINARY		
PLANNING		
BLDG PERMIT		
GENERAL BID		
PERMIT REV'S		
CONSTRUCTION Do not use drawing for construction unless initialed		

STATE OF WASHINGTON — 23975 — REGISTERED PROFESSIONAL ENGINEER — 10/07/22

S.S.# 90956
SCALE: AS NOTED
JOB# 21463

SHEET
F-0

P:\21000s\21463\mechanical\tanks\21463-F-0.dwg 10/5/2022 11:41 AM NPHAN



GENERAL COMPLIANCE NOTES

ARCHITECTURAL AND CIVIL DRAWINGS SHALL TAKE PRECEDENCE FOR REFERENCING ALL DIMENSIONS, PROPERTY LINES, ELEVATIONS AND EQUIPMENT LOCATIONS

ALL DIMENSIONS AND CONDITIONS SHALL BE CHECKED AND VERIFIED IN THE FIELD BEFORE STARTING ANY WORK. ANY DISCREPANCY SHALL BE CALLED TO THE ATTENTION OF THE OWNERS ENGINEER FOR HIS DECISION BEFORE PROCEEDING WITH THE WORK.

GENERAL CONTRACTOR SHALL OBTAIN NECESSARY PERMIT FROM APPLICABLE AGENCIES FOR EXCAVATIONS OF TRENCHES 5'-0" OR MORE IN DEPTH INTO WHICH A PERSON IS REQUIRED TO DESCEND.
AN UNAUTHORIZED RELEASE RESPONSE PLAN MUST BE SUBMITTED AND APPROVED BY GOVERNING AGENCY PRIOR TO TANK OPERATIONS.

ALL MATERIALS SHALL BE COMPATIBLE WITH USE FOR THE INTENDED PURPOSE AS PER NATIONALLY RECOGNIZED CODES, LOCAL CODES AND GOVERNING AUTHORITIES.

THE UNDERGROUND STORAGE TANK SYSTEM SHALL BE COMPATIBLE WITH THE PRODUCT STORED.

ALL MONITORING DEVICES SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.

GENERAL CONTRACTOR IS REQUIRED TO PROVIDE 72 HOUR (TYPICAL) NOTIFICATION TO GOVERNING AGENCY PRIOR TO TANK INSTALLATION.

TANK AND PIPING SYSTEM TO BE INSPECTED BY OWNER'S THIRD PARTY INSPECTOR & GOVERNING AGENCY AT FOUR (4) SEPARATE CONSTRUCTION PHASES (SEE SPECIFICATIONS):

A. TANK AIR TEST BEFORE SETTING IN HOLE AND SOAP TEST.
B. TANKS AND PRIMARY PIPING HYDROSTATICALLY OR PNEUMATICALLY TESTED FOR 30 MINUTES.
C. INSPECTION OF ALL SECONDARY CONTAINMENT, INCLUDING TESTING, IN ACCORDANCE WITH MANUFACTURER'S GUIDELINES.
D. FINAL INSPECTION INCLUDING ALL PORTIONS OF THE LEAK DETECTION SYSTEM.

ALL TANK SUMPS AND UNDER DISPENSER CONTAINMENT SUMPS SHALL BE HYDROSTATICALLY TESTED (LAKE TEST) WITH STANDING WATER TO TOP OF REDUCING COLLAR FOR A PERIOD OF 24 HOURS TO INSURE THAT THE SUMPS ARE WATERTIGHT. RECORD THE TEST RESULTS AND SUBMIT TO OWNER.

TANK SYSTEM, LEAK DETECTORS AND MONITORING SYSTEM INTEGRITY TESTS FORWARDED AND APPROVED BY GOVERNING AGENCY PRIOR TO TANK SYSTEM BEING PLACED IN OPERATION.

PRIOR TO FUEL BEING PUMPED, STATION MUST HAVE VEEDER ROOT FUNCTIONAL AND MONITORING ANNULAR SPACES OF TANK AND DISPENSER SUMPS.

PAYMENT OF ALL APPLICABLE UST OPERATING FEES SHALL BE SUBMITTED TO THE GOVERNING JURISDICTION WITHIN 30 DAYS OF THE FINAL INSPECTION.

EVIDENCE OF FINANCIAL RESPONSIBILITY SHALL BE SUBMITTED TO GOVERNING AGENCY (BY CHEVRON).

MEASUREMENTS OF BRINE LEVELS IN TANKS SHALL BE TAKEN BY GENERAL CONTRACTOR/STARTUP CONTRACTOR. REFER TO TANK MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR REQUIREMENTS.

APPROXIMATE TANK DEPTH CALCULATION

	VENT	VAPOR RECOVERY
1. ELEVATION @ VENT/DISPENSER.	175.50	175.21
2. ELEVATION @ TANK SUMP	172.75	172.72
3. GRADE DIFFERENTIAL (#2-#1)	-2.71	-2.42
4. PIPING FALL @ 2% (1/4" PER FOOT) (VENT @120' & VAPOR @ 200')	2.50	4.16
5. CONNECTIONS: a. Tank sump 12"; b. Crossovers, # @ 10" ea 20"; c. Vent/UDC 18"; 50"	4.16	4.16
6. TANK BURIAL DEPTH (#3+#4+#5)	4.37 FT	5.90 FT

PIPING LEGEND

- ——U—— 2" INSIDE 3" FIBERGLASS UNLEADED PIPING
- ——S—— 2" INSIDE 3" FIBERGLASS PREMIUM PIPING
- ——D—— 2" INSIDE 3" FIBERGLASS DIESEL PIPING
- — — VR — — 2" INSIDE 3" OR 3" INSIDE 4" FIBERGLASS VAPOR RECOVERY PIPING
- ——V—— 2" INSIDE 3" FIBERGLASS VENT PIPING

NOTE:
CONTRACTOR ASSUMES RESPONSIBILITY TO ASSURE THAT THE OPERABLE SYSTEM MEETS THE DESIGN INTENT AND THE CONTRACTOR IS PERMITTED TO ADJUST PIPING LOCATIONS BASED ON ACTUAL FIELD CONDITIONS AND INSTALLATION TECHNIQUES.

* PRODUCT, VAPOR AND VENT PIPING IS TO SLOPE TOWARD TANK 1/4" PER FOOT MINIMUM, 1/4" PER FOOT PREFERRED.
* SECONDARY CONTAINMENT PIPING IS SHOWN BY NOTE ONLY, NOT GRAPHICALLY. PRODUCT, VAPOR & VENT ARE DOUBLE WALL FIBERGLASS PIPING

GENERAL NOTES

1. INSTALL ONE (1) 20K REGULAR UNLEADED, ONE (1) 15K PREMIUM UNLEADED AND ONE (1) 12K DIESEL "XERXES" DOUBLE WALL FIBERGLASS TANKS WITH MONITORING OF ANNULAR SPACES BY "VEEDER ROOT" TLS-350 TANK AND PIPING MONITOR AND ALARM SYSTEM. TANK INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.
2. INSTALL A CONCRETE SLAB OVER TANKS. SURFACE WATER SHALL BE DIVERTED AWAY FROM EACH MANHOLE BY FORMING A CONCRETE CROWN WITH A 1-1/2" OVER 5' FROM THE EDGE OF THE MANHOLE RING TO THE SURROUNDING SLAB ELEVATION. SEE SHEET F2 DETAIL 6
3. INSTALL EVR PHASE I APPROVED DUAL POINT FILL ADAPTERS AND CAPS. INSTALL FILL DROP TUBE W/ OVERFILL PREVENTION VALVE.
4. INSTALL EVR PHASE I APPROVED DUAL POINT STAGE I VAPOR RECOVERY ADAPTERS AND CAPS.
5. INSTALL 2 HP FIXED SPEED TURBINES IN EACH OF TANKS. TURBINE SYSTEMS TO BE EQUIPPED WITH 3 GPH ELECTRONIC LINE LEAK DETECTION. LEAK DETECTORS ARE TO BE TESTED FOR THE 3 GPH LEAK DETECTION PRIOR TO START UP. CONTRACTOR TO PROVIDE TEST DATA AT THE TIME OF PUNCH LIST AS WELL AS INCLUDE IN CLOSE OUT BINDER. SET TURBINE INTAKES AT 4" FROM BOTTOM OF TANKS. TURBINES TO BE EQUIPPED WITH INTAKE FILTER SCREENS. CONTRACTOR IS TO LABEL TURBINES AND CONTROLLERS AS TO WHICH PRODUCT THEY SERVE. GREEN CONTROLLER LIGHTS ARE TO GO OUT WHEN TURBINES ARE OFF OR LOSE POWER.
6. INSTALL 3" DOUBLE WALL FIBERGLASS STAGE II VAPOR RECOVERY HEADER FOR VAPOR RECOVERY SYSTEM. SLOPE 1/4" PER FOOT MINIMUM TO TANKS. INSTALL 3" TO 2" REDUCING TEES WHERE HEADERS BRANCH TO DISPENSERS. CONTRACTOR TO INSTALL TRACER TAPE WITH VAPOR PIPING. TESTING OF VAPOR LINES SHALL BE PERFORMED PRIOR TO BACKFILL, PRIOR TO PAVING AND BEFORE STATION OPERATION.
7. INSTALL 2" DOUBLE WALL FIBERGLASS GASOLINE SUPPLY LINES TO DISPENSERS. PIPING SHALL BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS AND INSTRUCTIONS. PIPING SHALL BE INSTALLED WITH A MINIMUM SLOPE OF 1/4" PER FOOT FROM THE FURTHEST DISPENSER SUMP DOWN TO THE TURBINE SUMPS. CONTRACTOR TO INSTALL TRACER TAPE WITH PRODUCT PIPING. TESTING OF PRODUCT LINES SHALL BE PERFORMED PRIOR TO BACKFILL, PRIOR TO PAVING AND BEFORE STATION OPERATION.
8. EXISTING "VEEDER ROOT" TANK AND LINE ALARM CONTROL PANEL MODEL # TLS-350 IN BUILDING TO REMAIN. CONTRACTOR TO PROGRAM PANEL WITH ADDITIONAL SENSORS
9. INSTALL 2" DOUBLE WALL FIBERGLASS VENT LINE FOR EACH UNDERGROUND STORAGE TANK. SLOPE 1/4" PER FOOT MINIMUM TO TANKS
10. INSTALL TANK VENTS WITH PIPE SUPPORT TO BE A MINIMUM OF 12' ABOVE GRADE AND NOT WITHIN 5' FROM ANY BUILDING OPENING OR PROPERTY LINE THAT CAN BE BUILT UPON. VENT RISERS SHALL BE INSTALLED IN ACCORDANCE WITH UNIFORM FIRE CODE REQUIREMENTS.
11. INSTALL A SINGLE 3/4" ROBROY CONDUIT FOR EACH NEWLY INSTALLED TURBINE PUMP (SEE ELECTRICAL SHEET E01-0)
12. INSTALL TANK ANNULAR SPACE HYDROSTATIC MONITORING SENSORS
13. INSTALL EXTRACTOR ASSEMBLIES FOR VENT AND STAGE II VAPOR RECOVERY
14. INSTALL MAG PROBE TANK LEVEL GAUGES
15. TANKS SHALL BE PROPERLY MARKED AND TAGGED WITH STANDARD API IDENTIFICATION MARKINGS AT FILL MANHOLES.
16. INSTALL NEW WAYNE OVATION (6) 3+DIESEL DUAL HOSE PER SIDE, MULTI-PRODUCT DISPENSERS AND TO BE FITTED WITH STAGE II HOSES, NOZZLES AND BREAKAWAY VALVES. INSTALL NEW SINGLE WALL UNDER DISPENSER CONTAINMENT INCLUDING PRODUCT AND VAPOR SHEAR VALVES AND MONITORING SENSORS. START UP BY MANUFACTURER REPRESENTATIVE. GENERAL CONTRACTOR TO PURGE LINES WITH A MINIMUM OF 200 GALLONS THROUGH EACH HOSE/NOZZLE. ANY AIR POCKETS OR START UP PROBLEMS DUE TO IMPROPER INSTALLATION OR INCORRECT WIRING THAT DESTROYS ELECTRONICS WILL BE BILLED BACK TO THE CONTRACTOR. AFTER PURGING THE PRODUCT LINES OF AIR AND BEFORE VAPOR RECOVERY TESTING, CONTRACTOR IS TO REPLACE THE FACTORY INSTALLED GASOLINE FILTERS WITH NEW FILTERS.
18. ALL NEW PIPING AND TANKS TO BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS AND INSTALLATION INSTRUCTIONS.
19. INSTALL OVERFILL ALARM & ACKNOWLEDGMENT SWITCH IN LOCATION SHOWN. ALARM AND SWITCH TO BE LOCATED TO PROVIDE AN UNOBSTRUCTED VIEW TO TRUCK DRIVER.

DRAWING DISCLAIMER NOTE

THIS SITE PLAN HAS BEEN PREPARED WITHOUT BENEFIT OF TITLE REPORT, SURVEY, OR LEGAL DESCRIPTION. BARGHAUSEN CONSULTING ENGINEERS DOES NOT WARRANT THE ACTUAL LOCATION OF PROPERTY LINES AND SETBACKS NOR THE LOCATION OF EXISTING UNDERGROUND PIPING AND EQUIPMENT. IT IS THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO VERIFY PROPERTY LINES AND SETBACK DISTANCES WHERE THEY MAY AFFECT THE PLACEMENT OF NEW EQUIPMENT AS A PART OF THIS PROJECT. THE DRAWING REFLECTS EXISTING SITE CONDITIONS AS PROVIDED BY THE OWNER FROM ARCHIVE RECORDS.

TANK EXCAVATION NOTE:

TANK EXCAVATIONS SHALL BE PER OSHA REQUIREMENTS AND BE PERFORMED FOLLOWING THE RECOMMENDATIONS OF THE SOILS REPORT. TANKS EXCAVATIONS THAT REQUIRE SHORING SHALL BE ENGINEERED AND PERMITTED SEPARATELY AND SHALL BE THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR. HIGH WATER TABLE IS ANTICIPATED. CONTRACTOR TO SHORE AND DEWATER TANK HOLE EXCAVATION. FOLLOW TANK MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR WET HOLE TANK INSTALLATION.

UTILITY CONFLICT NOTE:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION, DIMENSION, AND DEPTH OF ALL EXISTING UTILITIES WHETHER SHOWN ON THESE PLANS OR NOT BY POTHOLING THE UTILITIES AND SURVEYING THE HORIZONTAL AND VERTICAL LOCATION PRIOR TO CONSTRUCTION. THIS SHALL INCLUDE CALLING UTILITY LOCATE @ 1-800-424-5555 AND THEN POTHOLING ALL OF THE EXISTING UTILITIES AT LOCATIONS OF NEW UTILITY CROSSINGS TO PHYSICALLY VERIFY WHETHER OR NOT CONFLICTS EXIST. LOCATIONS OF SAID UTILITIES AS SHOWN ON THESE PLANS ARE BASED UPON THE UNVERIFIED PUBLIC INFORMATION AND ARE SUBJECT TO VARIATION. IF CONFLICTS SHOULD OCCUR, THE CONTRACTOR SHALL CONSULT BARGHAUSEN CONSULTING ENGINEERS, INC. TO RESOLVE ALL PROBLEMS PRIOR TO PROCEEDING WITH CONSTRUCTION.

CAUTION !

POTENTIAL UTILITY CONFLICT. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING AND NEW UTILITIES PRIOR TO CONSTRUCTION. SEE UTILITY CONFLICT NOTE THE EXISTING WATER, STORM, AND SANITARY SEWER SERVICE SHOWN IS APPROXIMATE, BASED ON FIELD SURVEYS AND "AS-BUILT" RECORDS. THE GENERAL CONTRACTOR SHALL "POTHOLE" THE EXISTING UTILITIES TO VERIFY THE DIAMETER AND LOCATION (INCL. ELEVATIONS) PRIOR TO CONSTRUCTION. ANY DISCREPANCIES IN THE LOCATION OF THE EXISTING PIPE OR INCOMPATIBILITY OF THE DESIGN SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE OWNERS REPRESENTATIVE, AND BARGHAUSEN CONSULTING ENGINEERS (425-251-6222).

MARK	DATE	REVISIONS	INITIAL	MARK	DATE	REVISIONS	INITIAL

Chevron

670 TROSPER ROAD SW
TUMWATER, WA
CHEVRON STATION - FUEL SYSTEM REPLACEMENT

SITE PIPING AND UNDERGROUND STORAGE TANK BLEND SYSTEM

Barghausen Consulting Engineers, Inc.

HAL P. GRUBB — STATE OF WASHINGTON — 23975 — REGISTERED PROFESSIONAL ENGINEER — 10/07/22

MILESTONES	INITIAL	DATE
PRELIMINARY		
PLANNING		
BLDG PERMIT		
GENERAL BID		
PERMIT REV'S		
CONSTRUCTION Do not use drawing for construction unless initialed		

S.S.# 90956
SCALE: AS NOTED
JOB# 21463

SHEET F-01

BILL OF MATERIALS

♦	PART DESCRIPTION	X	SPECIFICATION	X	ALTERNATE	UNIT	QTY.	FURN.	INST.
	PRODUCT TANKS								
1	DOUBLE WALL: 10'#; 12,000 GALLONS	X	XERXES: 660-277-00 (2 -48" DW SUMP COLLARS) W/ BRINE			EA	1	C	GC
2	DOUBLE WALL: 10'#; 15,000 GALLONS	X	XERXES: 625-200-03 (48" DW SUMP COLLARS) W/ BRINE			EA	1	C	GC
3	DOUBLE WALL: 10'#; 20,000 GALLONS	X	XERXES: 625-199-07 (48" DW SUMP COLLARS) W/ BRINE			EA	1	C	GC
4									
5									
	LIQUID AND VAPOR TIGHT SUMPS								
14	TANK SUMP (48"x 88") w/ REDUCER & RETAINER RING	X	B480x37 (52T+36B)-SINGLE WALL -EO-CT-8 INCL 37" SS RING				3	C	GC
15	STP: WATERTITE SUMP LID	X	CTS-33-CT				3	C	GC
16	FILL: WATERTITE SUMP SHIELD (PLATFORM)	X	FIBRELITE: WSP37-16S, W/ OBSERVATION PORT/CAP		FIBRELITE: WSP37-OF8S (DIESEL)		3	C	GC
	5 GAL SPILL BUCKET SHROUD BOOT W/ CLAMPS	X	OPW: FLMP-SB, INCL UPPER/LOWER CLAMPS				3	C	GC
	CLAMPING RING KIT	X	OPW: WSP-CRKS				3	C	GC
17	VENT RISER SUMP FOR 3 PRODUCT		BRAVO B500-F3S-BD-VAC-AB-CT (IN PAVING)		BRAVO B-500-F4S-BD-AB-CT (4-PRODUCT)				
18	VENT RISER SUMP FOR 3 PRODUCT	X	BRAVO B501-S-222 (IN PLANTER)		BRAVO B-600-F3S-BD-AB, CT (IN PAVING)		1	C	GC
19	VENT PIPE RACK ASSEMBLY	X	BRAVO RS501		BRAVO BSR S500-JP-5L (4-5 VENTS)		1	C	GC
	PRODUCT PIPING								
20	2" OR 3" PRIMARY PRODUCT PIPING	X	NOV RED THREAD IIA			LF	900	C	GC
21	2" PRIMARY VAPOR RETURN OR VENT PIPING	X	NOV RED THREAD IIA			LF	450	C	GC
22	3" VAPOR RETURN PIPING	X	NOV RED THREAD IIA			LF	250	C	GC
23	3" SECONDARY PIPING	X	NOV RED THREAD IIA			LF	1350	C	GC
24	4" SECONDARY PIPING	X	NOV RED THREAD IIA			LF	250	C	GC
25						LF		C	GC
26	STYROFOAM PIPE/CONDUIT SUPPORT		PHIL-TITE: 48409			EA		GC	GC
27									
28									
	FILL/VAPOR								
29	TOP SEAL CAP	*	OPW: 634TT-7085-EVR			EA	3	C	GC
30	ROTATING TOP SEAL ADAPTER	*	OPW: 61SALP-1020-EVR			EA	3	C	GC
31	VAPOR RECOVERY CAP	*	OPW: 1711T-7085-EVR			EA	3	C	GC
32	ROTATING VAPOR RECOVERY ADAPTER	*	OPW: 61VSA-1020-EVR			EA	3	C	GC
33	RISER ADAPTER	*	OPW: FSA-400			EA	9	C	GC
34	PAVEMENT MARKERS	X	0998-***			EA	3	C	GC
35	RISER SUPPORT BRACKET	X	OPW: 6511-RB16			EA	3	C	GC
36	CLEAN AIR SEPARATOR		HEALY # 9961			EA		C	GC
37	18" DIAMETER MANHOLE/SECURED LID	*	OPW: 6110-18WT			EA	2	C	GC
38	5 GALLON SPILL CONTAINMENT (FILL) ***	*	OPW: P761-FLPL, NO DRAIN			EA	3	C	GC
39	5 GALLON SPILL CONTAINMENT (VAPOR)	*	OPW: P761-FLPL, NO DRAIN			EA	3	C	GC
40	40" MULTI-PORT COMPOSITE MANHOLE W/ VIEWPORT	X	FIBRELITE FL100-MP16S	X	FL100-OF8S (DIESEL)	EA	3	C	GC
41								C	GC
42	EXTRACTOR FITTING 4" x 2" x 2"		OPW 233-4422			EA		C	GC
43	EXTRACTOR FITTING 4" x 3" x 2"	*	OPW 233-4432			EA	3	C	GC
44	TANK BOTTOM PROTECTOR		OPW: 6111-1400			EA	3	C	GC
45	FILL TUBE WITH POSITIVE SHUT-OFF VALVE (TESTABLE)	*	OPW: 71SO-410CT (INCL. 61JSK-4410 EVR JACK SCREW)			EA	3	C	GC
46						EA		C	GC
47						EA		C	GC
48	DEBRIS BUCKET (PRODUCT)				PHIL-TITE: PP 1005 TB	EA		C	GC
49	DEBRIS BUCKET (VAPOR)				PHIL-TITE: PP 1005 TBP	EA		C	GC
50	GASOLINE HAND PUMP (VAPOR)				PHIL-TITE: EP 400 VB	EA		C	GC
	TURBINE								
51	SUBMERGED TURBINE PUMP: LENGTH RANGE 153" TO 213"	X	RED JACKET, 2-HP FIXED SPEED, 208/230V 60Hz, single-phase P200 U1-3 -RJ3, PLLD-READY, SPIKE CHECK			EA	3	C	GC
52	TURBINE RISER: LENGTH RANGE 31" TO 61"	X	RED JACKET NO THREADOLET RJRISER			EA	3	C	GC
53	TURBINE CONTROLLER 1/TURBINE	X	RED JACKET IQ CONTROLLER RJP-JQ 880-051-1			EA	3	C	GC
54	40" COMPOSITE MANHOLE W/ FRAME & 12" SKIRT	X	FIBRELITE: FL-100 / SK300 (TAPER OUT)			EA	3	C	GC
55	LIFT HANDLE	X	FIBRELITE: FL7A, LIFTING AID FOR FL90				1	C	GC
56	2" FULL PORT BALL VALVE (COATED BRASS)	X	JOMAR: T-100-508			EA	3	C	GC
57						EA		C	GC
58						EA		C	GC
59						EA		C	GC
60	SIPHON CARTRIDGE FOR RED JACKET	X	410151-001				3		
61	CHECK VALVE (FOR MANIFOLDED TANKS)		65 PSI RELIEF VALVE FOR SLAVE TURB.(NEW ONLY): 410153-002		NON-VENTED SWIFT CHECK FOR SLAVE TURB (OLD ONLY):	330020-4[illegible]			
	DISPENSER								
65	MULTI-PRODUCT BLENDING DISPENSER (BALANCE)		DRESSER WAYNE: OVATION B12/322102/UK/LX-CH	X	OVATION B23/422102/UK/LX-CH (4 PROD.)	EA	6	C	GC
66	MULTI-PRODUCT BLENDING DISPENSER (HEALY VACUUM)		DRESSER WAYNE: OVATION B12/322702/UK/LX-CH		OVATION B23/422702/UK/LX-CH (4 PROD.)				
67	DISPENSER EQUIPMENT (NOZZLES, HOSES, ETC.)	X	PRE EVR BALANCE SYSTEM G-70-52-AM			EA	24	C	GC
68	FIBERGLASS DISPENSER CONTAINMENT BOX - SINGLE WALL	X	BRAVO B-9250-S36			EA	6	C	GC
69	FIBERGLASS DISPENSER CONTAINMENT BOX DOUBLE WALL		B9253-BD-VAC-AB-CT		BRAVO B-8000-BD-AB, CT	EA		C	GC
70	DISPENSER SHEAR VALVES	X	OPW: 10BHMP-5830, CT			EA	18	C	GC
71	VAPOR SHEAR VALVES	X	OPW: 60VSP-1001			EA	6	C	GC
72									
73								C	GC
74	FILTER CAP FITTING	X	PETRO-CLEAR TC 1-12			EA		C	GC

♦	PART DESCRIPTION	X	SPECIFICATION	X	ALTERNATE	UNIT	QTY.	FURN.	INST.
	ISD								
40	ISD VAPOR FLOW METER		VEEDER ROOT # 331847-002			EA		C	GC
41	ISD PRESSURE SENSOR KIT		VEEDER ROOT # 330020-515			EA		C	GC
42	ISD DISPENSER INTERFACE MODULE		VEEDER ROOT #			EA		C	GC
43	3-WAY BALL VALVE		VEEDER ROOT # 576008-649			EA		C	GC
	MISCELLANEOUS								
44	SUMP PENETRATION BOOT 3/4" TO 1" CONDUITS	X	BRAVO F-17-RR or F-10-RR		BEAUDREAU S1-0.75PF AND S1-1.0PF	EA	15	C	GC

♦	PART DESCRIPTION (CONT.)	X	SPECIFICATION	X	ALTERNATE	UNIT	QTY.	FURN.	INST.
	MONITORING								
75	MONITORING CONSOLE WITH BUILT IN PRINTER	X	VEEDER ROOT(VR):848290-022 (TLS-350 PLUS)			EA	1	C	GC
76	MODULE: 4 PROBE INPUT INTERFACE	X	VR: 329356-002			EA	1	C	GC
77	MODULE: 8 INTERSTITIAL/SUMP SENSOR	X	VR: 329358-001			EA	3	C	GC
78	MODULE: 4 OUTPUT RELAY INTERFACE	X	VR: 329359-001			EA	1	C	GC
79	MODULE: SITEFAX	X	VR: 330149-002			EA	1	C	GC
80	RS-232 PORT	X	VR: 329362-001			EA	1	C	GC
81	7 INPUT SMART SENSOR MODULE	X	VR: 332250-001			EA	0	C	GC
82	MAG 1 PLUS PROBE, 11' (0.1 gph)	X	VR: 846390-111			EA	3	C	GC
83	3 VACUUM SENSOR KIT (BRINE TANK)		VR: 330020-465						
84	MODULE: 8 INPUT SMART SENSOR MODULE (VACUUM)	X	VR: 329356-004						
85	TLM RISER ADAPTER & CAP	*	VR: 312020-952		EVER-TITE 4097 AGBR, + 4097 AGMBRNL	EA	3	C	GC
86	BIR SOFTWARE	X	VR: 330160-100			EA	1	C	GC
87	3 WAY BALL VALVE FOR VACUUM		VR: 576008-649			EA		C	GC
88	NON-DISCRIMINATING SENSOR	X	VR: 794380-208			EA	7	C	GC
89	NON-DISCRIMINATING SENSOR TANK SUMP	X	VR: 794380-208			EA	6	C	GC
90	HYDROSTATIC SENSOR - DUAL FLOAT (TANKS)	X	VR: 794380-303			EA	3	C	GC
91									
92	ISD SOFTWARE		VR: 330160-104			EA		C	GC
93	MODULE: 6 INPUT PLLD	X	VR: 330843-001			EA	1	C	GC
94	MODULE: 3 OUTPUT PLLD	X	VR: 330374-001			EA	1	C	GC
95	DUAL PORT RS232 MODULE	X	VR: 330586-001			EA	1	C	GC
96	PLLD FOR RED JACKET W/O SWIFT CHECK	X	VR: 848480-001			EA	3	C	GC
97	OVERFILL ALARM (AT 90% TANK CAPACITY)	X	VR: 790091-001			EA	1	C	GC
98	ACKNOWLEDGMENT SWITCH (WHERE REQUIRED)	X	VR: 790095-001			EA	1	C	GC
99	ADAPTOR HOSE FOR VACUUM MONITORING 6MM TO 1/4" NTP		CPE SPT M14						
100	TLM FLOAT KIT GAS 10'	X	VR: 886100-010			EA	2	C	GC
101	TLM FLOAT KIT DIESEL 10'	X	VR: 846400-001			EA	1	C	GC
	MISCELLANEOUS								
102	PRESSURE/VACUUM VALVE: 2" THREADED	*	HUSKY: 5885			EA	1	C	GC
103	3" x 2" SUMP ENTRY/DOUBLE WALL TERMINATION FITTINGS		SMITH FIBERCAST 12030-626-0	X	BRAVO F-32A-T-F	EA	33	C	GC
104	4" x 3" SUMP ENTRY/DOUBLE WALL TERMINATION FITTINGS		SMITH FIBERCAST 12030-625-0	X	BRAVO F-43A-T-F	EA	3	C	GC
105	4" x 3" CONCENTRIC REDUCER		SMITH FIBERCAST 012040-238-3			EA		C	GC
106	5" x 4" CONCENTRIC REDUCER		SMITH FIBERCAST 012050-238-3			EA		C	GC
107	ADAPTOR: 1 1/2" EZ-FIT x 2" FRP	X	EZ-FIT: EZX15FG			EA		C	GC
108	ADAPTOR: 2" EZ-FIT x 2" FRP	X	EZ-FIT: EZX20FG			EA	31	C	GC
109	ADAPTOR: 3" EZ-FIT x 3" FRP	X	EZ-FIT: EZX30FG			EA	3	C	GC
110	ADAPTOR: 1" MNPT x 2" EZ-FIT	X	EZ-FIT: EZX10HM			EA		C	GC
111	ADAPTOR: 1 1/2" MNPT x 2" EZ-FIT	X	EZ-FIT: EZX10HM			EA		C	GC
112	ADAPTOR: 2" EZ-FIT x 2" MNPT	X	EZ FIT: EZX20HM			EA	3	C	GC
113	ADAPTOR: 3" EZ-FIT x 3" MNPT	X	EZ FIT: EZX30HM W/ CLAMP & GASKET			EA	3	C	GC
114	FLEXIBLE CONNECTOR: 1 1/2" x 15" EZ-FIT	X	EZ FIT: FFEZ01X15			EA	8	C	GC
115	FLEXIBLE CONNECTOR: 1 1/2" x 18" EZ-FIT	X	EZ-FIT: FFEZ01X18			EA	18	C	GC
116	FLEXIBLE CONNECTOR: 1 1/2" x 2" x 15" EZ-FIT	X	EZ-FIT: FFEZ01X09X15			EA	0	C	GC
117	FLEXIBLE CONNECTION: 2" x 15" EZ-FIT	X	EZ-FIT: FFEZ09X15			EA	0	C	GC
118	FLEXIBLE CONNECTOR: 2" x 18" EZ-FIT	X	EZ-FIT: FFEZ09X18			EA	3	C	GC
119	FLEXIBLE CONNECTION: 2" x 24" EZ-FIT	X	EZ-FIT: FFEZ09X24			EA	3	C	GC
120	FLEXIBLE CONNECTION: 3" x 18" EZ-FIT	X	EZ FIT: FFEZ30X18			EA	3	C	GC
121									
122	ELBOW: 1 1/2"- 90° EZ-FIT	X	EZ FIT: EZ15 X EZ15 90			EA	24	C	GC
123	ELBOW: 2"- 90° EZ-FIT	X	EZ FIT: EZXEZ290-FL			EA	9	C	GC
124									
125	TEE: 1 1/2" X 1 1/2" X 2" REDUCER TEE	X	EZ FIT: EZ15 X EZ15 X EZ20 TEE			EA		C	GC
126									
127	DIESEL VENT RISER RAIN CAP	X	23-0033			EA	1	C	GC
128									
129									
130									
131	VACUUM PRESSURE GAGE (@ VENTS)		HEZ727						
132									
133	1/4" 3-WAY BALL VALVE FOR VACUUM MONITORING		VEEDER ROOT 576008-649 (VALVE ONLY)						
134	1/2" BALL VALVE	X	JOMAR: 100-903						
135	PRE ASSEMBLED VALVE ASSEMBLY	X	VEEDER-ROOT						
136	PRE ASSEMBLED VALVE ASSEMBLY	X	VEEDER-ROOT						

* (BL) = BALANCE
** (VA) = VAPOR ASSIST
*** VERIFY SIZE REQUIRED BY LOCAL IMPLEMENTING AGENCY

✱ ITEMS MARKED WITH THIS SYMBOL FORM A PART OF A LISTED ASSEMBLY TO CONFORM WITH CARB VR-102-P FOR PHASE I VAPOR RECOVERY. NO ALTERNATES TO THESE PARTS MAY BE USED IN LOCATIONS SUBJECT TO THESE REGULATIONS.

+ ITEMS MARKED WITH THIS SYMBOL FORM A PART OF A LISTED ASSEMBLY FOR PHASE II VAPOR RECOVERY. NO ALTERNATES TO THESE PARTS MAY BE USED IN LOCATIONS SUBJECT TO THESE REGULATIONS.

MARK	DATE	REVISIONS	INITIAL	MARK	DATE	REVISIONS	INITIAL

Chevron

670 TROSPER ROAD SW
TUMWATER, WA
CHEVRON STATION - FUEL SYSTEM REPLACEMENT

Barghausen Consulting Engineers, Inc.

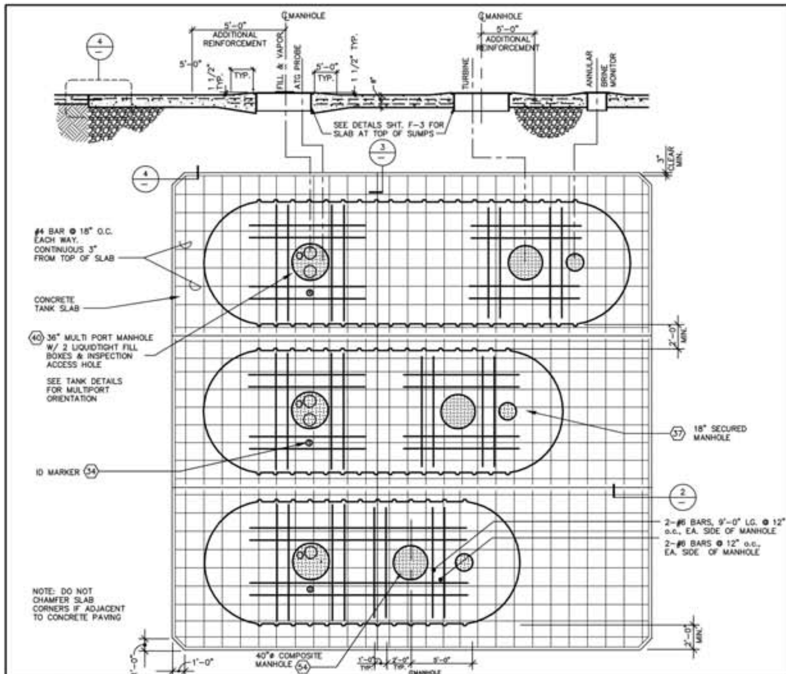
BILL OF MATERIALS

HAL P. GRUBB — STATE OF WASHINGTON — 23975 — REGISTERED PROFESSIONAL ENGINEER — 10/07/22

MILESTONES	INITIAL	DATE
PRELIMINARY		
PLANNING		
BLDG PERMIT		
GENERAL BID		
PERMIT REV'S		
CONSTRUCTION Do not use drawing for construction unless initialed		

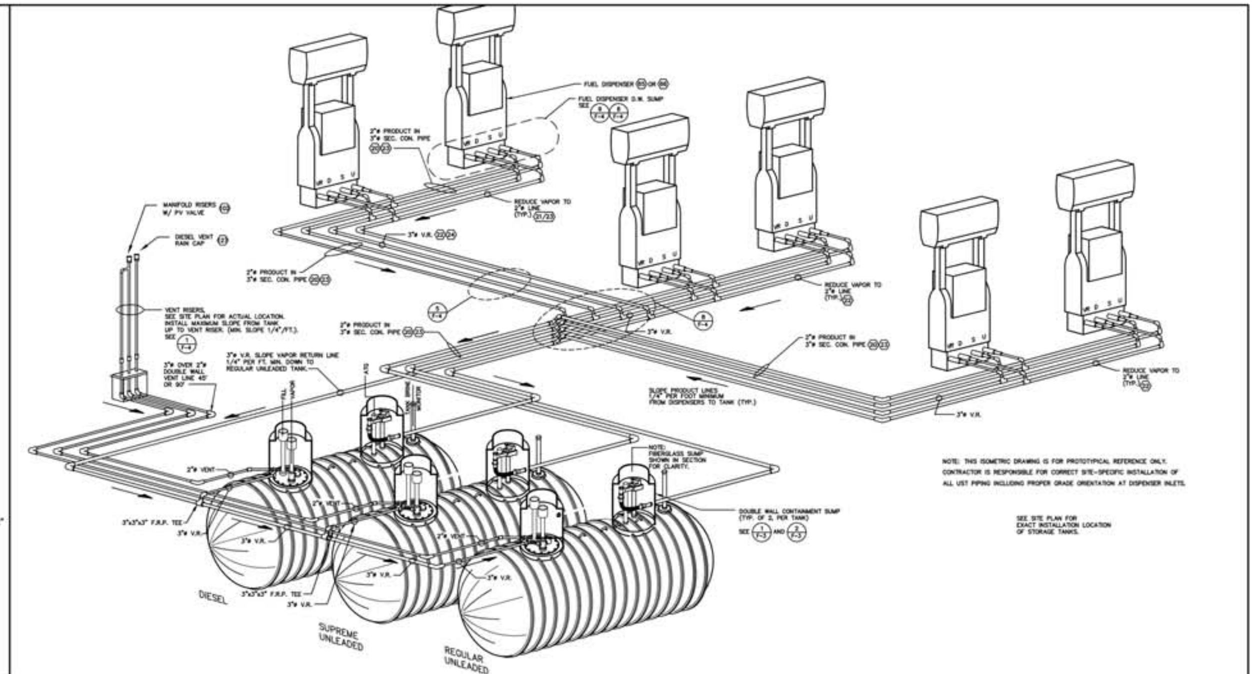
S.S.# 90956
SCALE: AS NOTED
JOB# 21463

SHEET F-1



6 CONCRETE SLAB AND REINFORCING FOR 10' ⌀ - 12,000, 15,000 AND 20,000 GAL. TANKS

NO SCALE

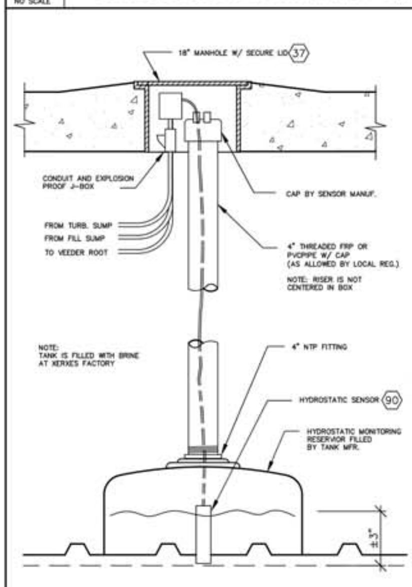


7 UNDERGROUND TANK AND PIPING ISOMETRIC

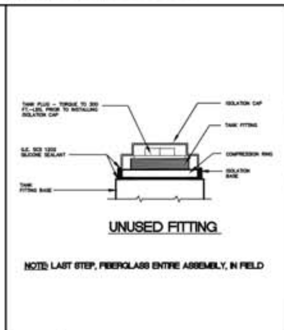
NO SCALE

NOTES

1. TYPICAL PIPING LAYOUT SHOWN FOR MULTI-PRODUCT DISPENSERS. SEE PLANS FOR SPECIFIC DISPENSER TYPE AND CONFIGURATION FOR THIS SITE.
2. ALL PRODUCT LINES, VAPOR RECOVER & VENT PIPING, TANKS SUMPS, VENT RISER SUMP AND DISPENSER SUMPS ARE TO BE SECONDARILY CONTAINED AND CONTINUOUSLY MONITORED.
3. EVERY TANK CONTAINMENT SUMP, DISPENSER CONTAINMENT SUMP, AND VENT RISER SUMP SHALL CONTAIN A LIQUID SENSING PROBE.
4. NOT USED
5. PERPENDICULAR PENETRATIONS OF THE CONTAINMENT SUMPS ARE PREFERRED. 15° IS THE MAXIMUM ALLOWABLE PENETRATION ANGLE.
6. SPARE ELECTRICAL CONDUITS MUST BE SEALED.
7. SEE SHEET ES-1 FOR ELECTRICAL CONDUIT LAYOUT.
8. OBTAIN WRITTEN APPROVAL FROM CHEVRON FOR LESS THAN 1/4" PER FOOT SLOPE ON PRODUCT, VAPOR AND VENT LINES. 1/8" SLOPE OF VR PIPING TO LOWEST OCTANE TANK IS CODE MINIMUM. CHEVRON PREFERRED SLOPE IS 1/4" PER FOOT. SLOPES BETWEEN 1/8" AND 1/4" PER FOOT REQUIRE CHEVRON P.M. APPROVAL.
9. TANK RISERS AND DISPENSER PIPING MUST BE ADDRESSED AS FOLLOWS FOR TANKS CONTAINING GASOLINE:
   - ANNULAR SPACE RISER MUST BE SCHEDULE THREADED FRP OR PVC PIPE.
   - FILL, VAPOR AND TANK LEVEL MONITOR MUST BE SCHEDULE 40 GALVANIZED PIPE. EACH RISER MUST BE PRIMED AND WRAPPED.
   - TURBINE RISER MUST BE SCHEDULE 40 BLACK IRON PIPE, PRIMED AND WRAPPED.
   - ALL STEEL DISPENSER PIPING AND FITTINGS MUST BE SCHEDULE 40 BLACK IRON PIPE, PRIMED AND WRAPPED.
10. FOR MANIFOLDED INSTALLATIONS, REFER TO VEEDER-ROOT, AND RED JACKET INSTALLATION GUIDELINES.
11. TEST ALL PIPING ACCORDING TO CHEVRON STANDARD CONSTRUCTION SPECIFICATIONS

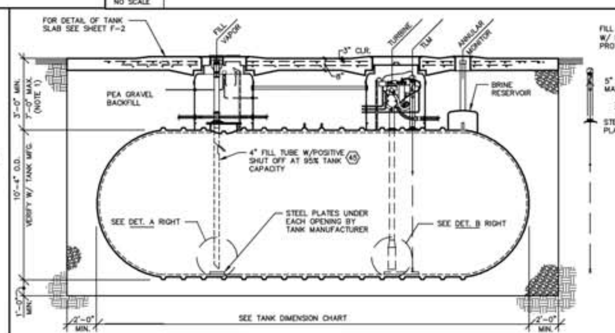


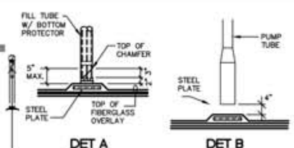
5 HYDROSTATIC SPACE MONITOR



8 UNUSED TANK FITTING

NO SCALE





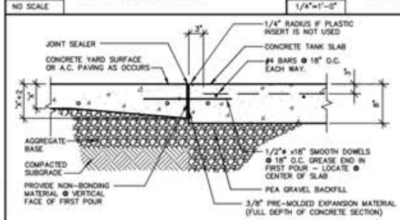
NEW TANK DIMENSION CHART

TANK SIZE	TANK DIA.	TANK LENGTH
		26'-0 1/2"
12,000 GAL.	10'-4"	24'-0 1/4"
15,000 GAL.	10'-4"	29'-5 3/4"
20,000 GAL.	10'-4"	37'-8 3/4"
		47'-8 3/4"

NOTE: VERIFY TANK LENGTH WITH MANUFACTURER.

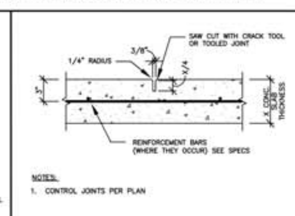
1 10' FIBERGLASS TANK AND EXCAVATION SECTION

1/4"=1'-0"



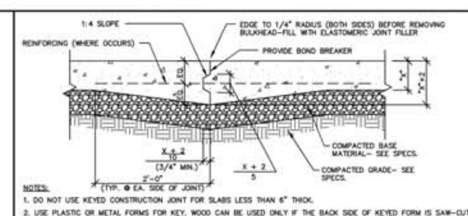
4 TANK SLAB EDGE

1 1/2"=1'-0"



3 TOOLED CONTROL JOINT

1 1/2"=1'-0"



2 CONSTRUCTION JOINT

1"=1'-0"

MARK	DATE	REVISIONS	INITIAL	MARK	DATE	REVISIONS	INITIAL

Chevron

Barghausen Consulting Engineers, Inc.

670 TROSPER ROAD SW

TUMWATER, WA

CHEVRON STATION - FUEL SYSTEM REPLACEMENT

ISOMETRIC, UNDERGROUND STORAGE TANK PIPING (BLEND SYSTEM), TANK SLAB SECTION

HAL P. GRUBB, STATE OF WASHINGTON, 23975, REGISTERED PROFESSIONAL ENGINEER, 10/07/22

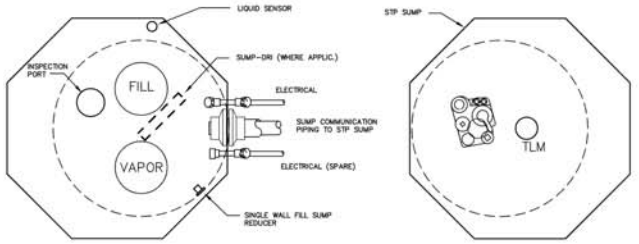
MILESTONES	INITIAL	DATE
PRELIMINARY		
PLANNING		
BLDG PERMIT		
GENERAL BID		
PERMIT REV'S		
CONSTRUCTION Do not use drawing for construction unless initialed		

S.S.# 90956

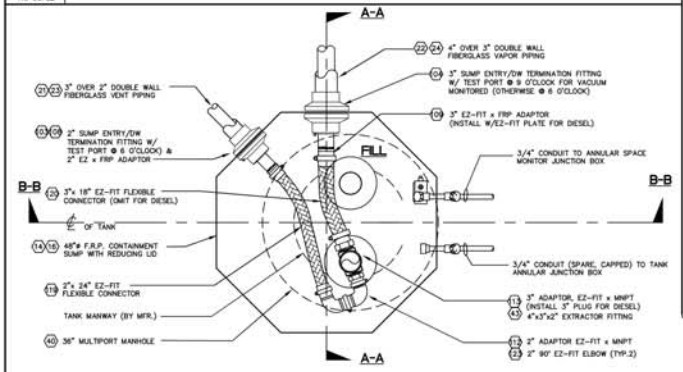
SCALE: AS NOTED

JOB# 21463

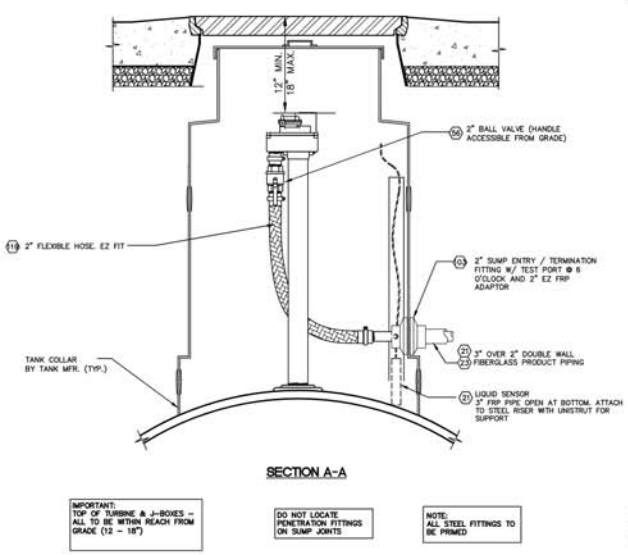
SHEET F-2



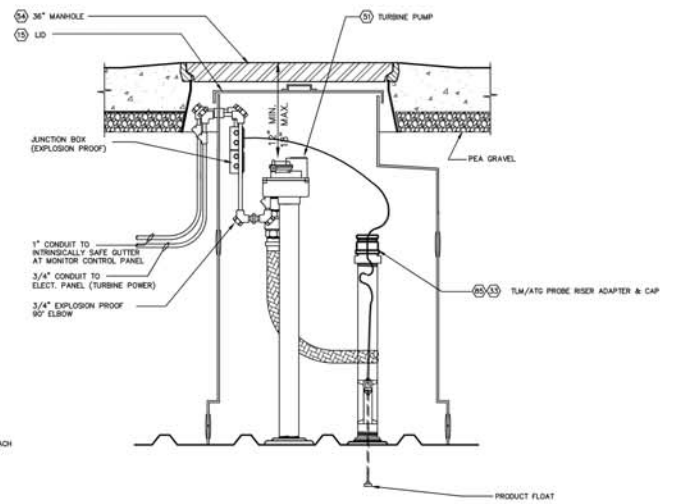
3 NO SCALE — **FILL SUMP MULTIPORT ORIENTATION**



PLAN



SECTION A-A

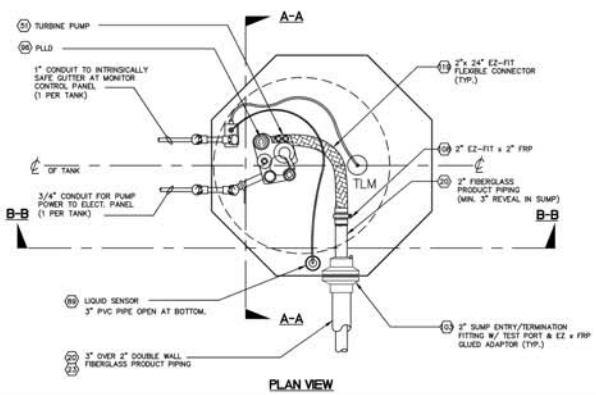


SECTION B-B

IMPORTANT:
TOP OF TURBINE & J-BOXES – ALL TO BE WITHIN REACH FROM GRADE (12 – 18")

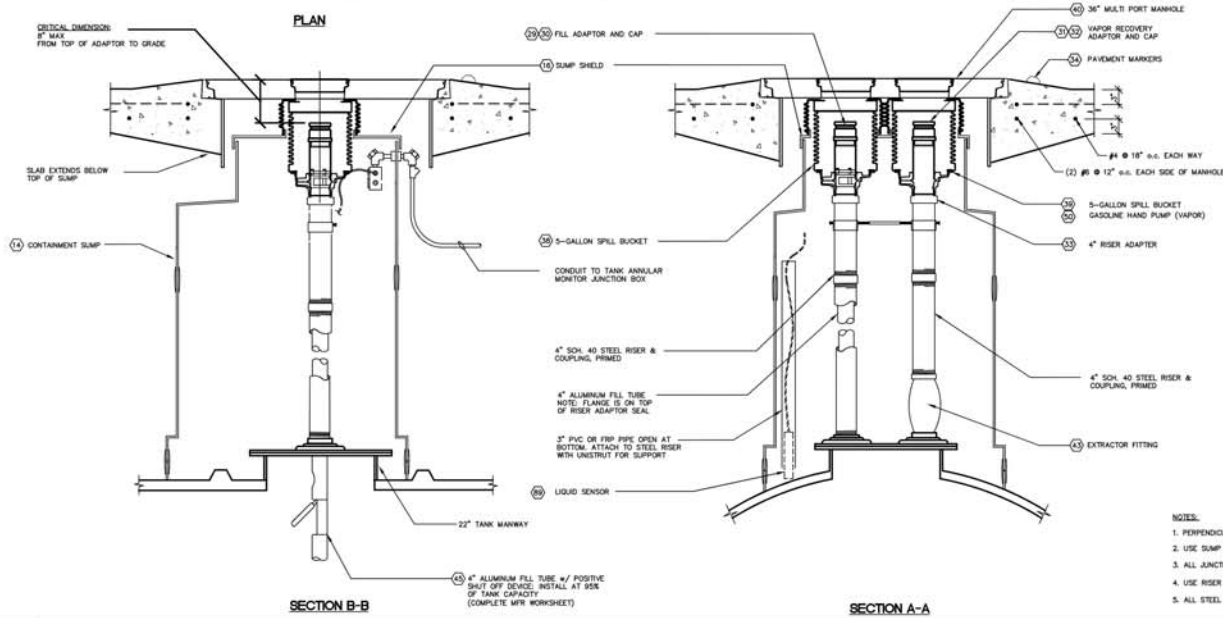
DO NOT LOCATE PENETRATION FITTINGS ON SUMP JOINTS

NOTE:
ALL STEEL FITTINGS TO BE PRIMED



PLAN VIEW

2 1"=1'-0" — **TURBINE SUMP DETAILS**



SECTION B-B **SECTION A-A**

NOTES:
1. PERPENDICULAR PENETRATIONS OF CONTAINMENT SUMPS REQUIRED.
2. USE SUMP PENETRATION FITTINGS AT ALL PENETRATIONS OF SUMP.
3. ALL JUNCTION BOXES ARE TO BE PLACED WITHIN 1'-0" OF THE TOP OF SUMP.
4. USE RISER SUPPORT BRACKETS (BRACELETS) IN FILL SUMP.
5. ALL STEEL FITTINGS TO BE PRIMED.

1 1"=1'-0" — **TLM, FILL, VAPOR AND VENT**

MARK	DATE	REVISIONS	INITIAL

Chevron

Berghausen Consulting Engineers, Inc.

MARK	DATE	REVISIONS	INITIAL

670 TROSPER ROAD SW
TUMWATER, WA
CHEVRON STATION – FUEL SYSTEM REPLACEMENT

TANK SECTION TURBINE AND FILL DETAILS

STATE OF WASHINGTON — 23075 — REGISTERED PROFESSIONAL ENGINEER — 10/07/22

MILESTONES	INITIAL	DATE
PRELIMINARY		
PLANNING		
BLDG PERMIT		
GENERAL BID		
PERMIT REV'S		
CONSTRUCTION Do not use drawing for construction unless initialed		

BSI# 90906
SCALE: AS NOTED
JOB# 21463

SHEET
F-3

P:\21000s\21463\mechanical\tanks\21463-F-3_Tank Details_CA_MAY2020.dwg 10/6/2022 4:48 PM NPHAN

NOTE:

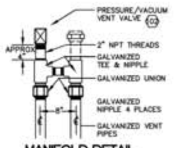
1. PLUGS ON ALL SHEAR VALVES MUST BE ACCESSIBLE.
2. INSTALL VAPOR SHEAR SUPPORT FROM BOTTOM OF SHEAR VALVE TO DISPENSER BOX.

TESTING:

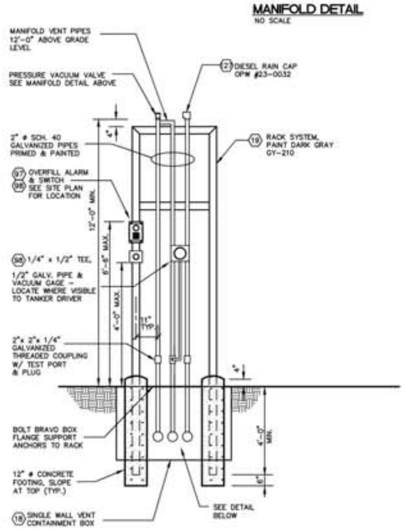
1. TEST ALL PIPING ACCORDING TO CHEVRON STANDARD CONSTRUCTION SPECIFICATIONS.
2. DISPENSER SUMP TO BE TESTED ACCORDING TO CHEVRON PRESSURE TESTING SPECIFICATIONS.
3. WHEN TESTING PRODUCT LINES, INSTALL STEEL CAP ON OPEN SHEAR VALVES TO AVOID DAMAGE TO THE VALVE.

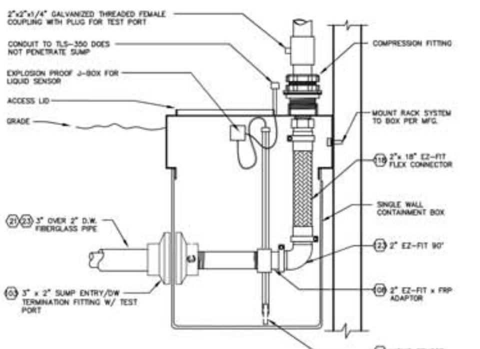
VENT ASSEMBLY NOTES:

1. DO NOT CONNECT DIESEL VENT TO CLEAN AIR SEPARATOR
2. DO NOT LOCATE VENT RISERS WITHIN:
   - BUILDING OR BUILDING COLUMNS
   - 5'-0" OF ELECTRIC LIGHTS, SIGNS OR OTHER SOURCES OF IGNITION



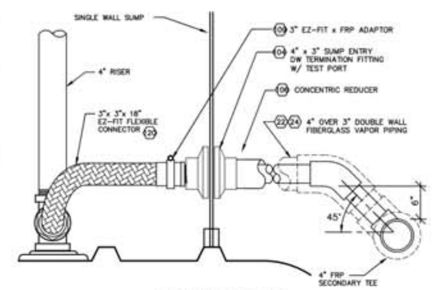
MANIFOLD DETAIL
NO SCALE





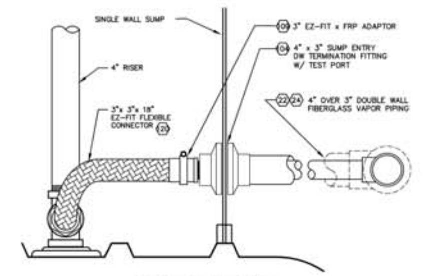
BASE DETAIL
NO SCALE

1 VENT RISER DETAIL
NO SCALE



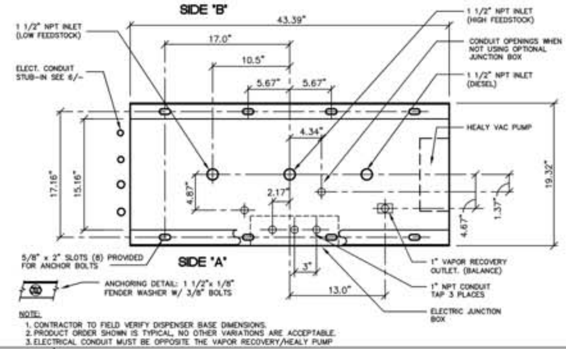
SUPREME UNLEADED

2 PHASE II VAPOR LINE CONNECTION
NO SCALE



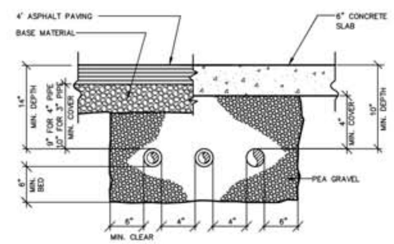
REGULAR UNLEADED

3 PHASE II VAPOR LINE CONNECTION
NO SCALE

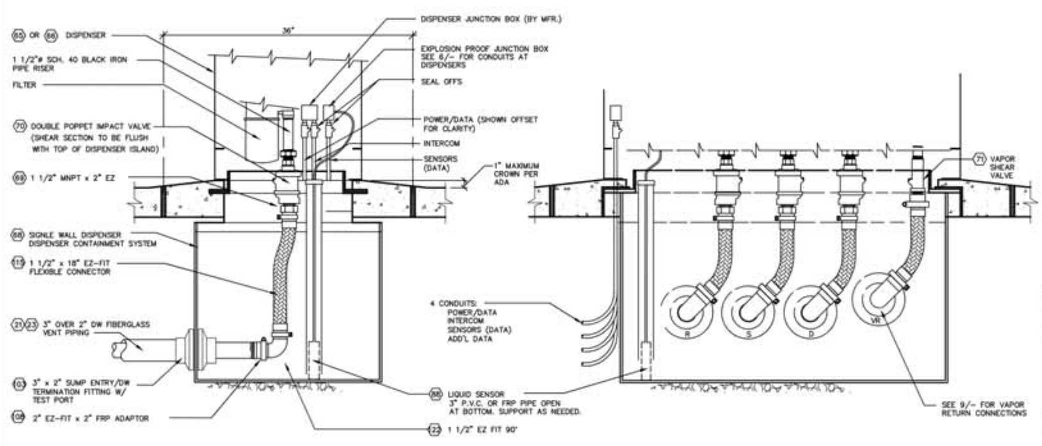


NOTE:
1. CONTRACTOR TO FIELD VERIFY DISPENSER BASE DIMENSIONS.
2. PRODUCT ORDER SHOWN IS TYPICAL, NO OTHER VARIATIONS ARE ACCEPTABLE.
3. ELECTRICAL CONDUIT MUST BE OPPOSITE THE VAPOR RECOVERY/HEALY PUMP

4 DISPENSER BASE - DRESSER WAYNE - OVATION 2 - MODEL: B23/B12
NO SCALE



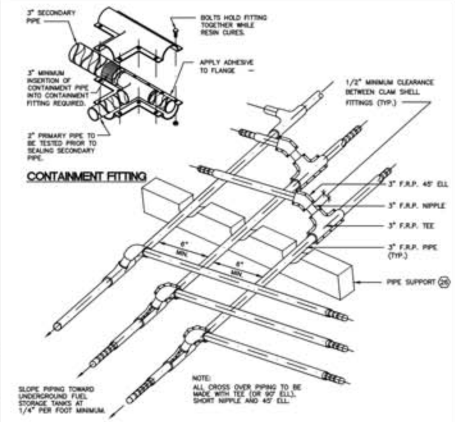
5 PIPE TRENCH DETAIL
NO SCALE



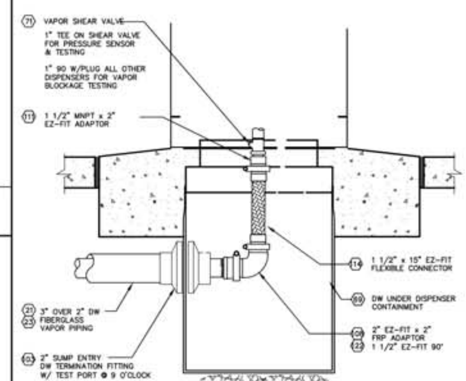
PRODUCT

NOTE:
USE APPROVED NON-HARDENING JOINT COMPOUND FOR THREADED CONNECTIONS.

6 DRESSER WAYNE OVATION 2 DISPENSER PRODUCT PIPING CONNECTIONS
NO SCALE



8 PIPING CROSSOVER DETAIL
NO SCALE



9 VAPOR RETURN PIPING, DISPENSER AT GRADE
NO SCALE

MARK	DATE	REVISIONS	INITIAL	MARK	DATE	REVISIONS	INITIAL
					5/13/20	DRAWING UPDATE	

Chevron

670 TROSPER ROAD SW
TUMWATER, WA
CHEVRON STATION - FUEL SYSTEM REPLACEMENT

PRODUCT, VENT, VAPOR AND DISPENSER DETAILS

Barghausen Consulting Engineers, Inc.

MILESTONES	INITIAL	DATE
PRELIMINARY		
PLANNING		
BLDG PERMIT		
GENERAL BID		
PERMIT REV'S		
CONSTRUCTION Do not use drawing for construction unless initialed		

S.S.# 90956
SCALE: AS NOTED
JOB# 21463

SHEET F-4

HAL P. GRUBB, STATE OF WASHINGTON, REGISTERED PROFESSIONAL ENGINEER 23975, 10/07/22

P:\21000s\21463\mechanical\tanks\21463-F-4, Dispenser Details_CA_MAY2020.dwg 10/4/2022 4:49 PM NPHAN

Pre-plot:[NOV 08, 2005 16:09:4g] Xrefs: xbdr_11x17 Images:

DESIGN CRITERIA

SAFETY FACTORS	-	1.25 DURING EXCAVATION, 1.40 AFTER COMPLETION
CONCRETE STRENGTH	-	f'c = 2.0 kSI
REINFORCING STEEL	-	GRADE 40
WT. OF PEA GRAVEL BACKFILL : DRY	-	100 PCF
SUBMERGED	-	60 PCF
WT. OF CONCRETE : DRY	-	150 PCF
SUBMERGED	-	88 PCF

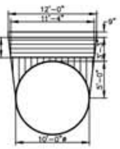
BUOYANCY = DISPLACEMENT X 62.4 P.C.F.
BURIAL : 4'-0"
WATERTABLES : ⓐ 3'-6" BELOW TOP OF TANK SLAB
ⓑ AT BOTTOM OF TANK SLAB

Ⓘ 10'-0" ± DIAMETER DOUBLE WALLED F.R.P. TANK SINGLE OR MULTIPLE INSTALLATION.

ⓐ WATERTABLE @ 3'-6"

TANK BUOYANCY:
(78.54 X 62.4 X 19.48) + (523.6 X 62.4) + (28.47 X 62.4) = 129918.6#

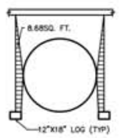
WT. OF CONCRETE 12 X 32.48 X 112.5 = 43848#
WT. OF TANK = 5156#
GROSS VOLUME OF DRY BACKFILL
$\frac{12+11.33}{2}$ X 2.75 x 32.48= 1042.36 CU.FT.
VOLUME OF 48"ø F.R.P. RISERS = 75.4 CU.FT.
NET VOLUME OF DRY BACKFILL = 966.96 CU.FT.
WT. OF DRY FILL 100 X 966.96= 96696#
GROSS VOLUME OF WET BACKFILL OVER TANK SHELL
($\frac{11.33+10}{2}$ X 5.50 − $\frac{78.54}{2}$) X 19.48 = 378.30 CU.FT.
VOLUME OF 48"ø F.R.P. RISERS = 25.14 CU.FT.
NET VOLUME OF WET BACKFILL OVER TANK SHELL = 353.16 CU.FT.
VOLUME OF WET BACKFILL OVER TANK DOMES
2(5 X 5.5 X 10 − $\frac{261.8}{2}$) = 288.2 CU.FT.
TOTAL NET VOLUME OF WET FILL = 641.36 CU. FT.
WT. OF WET FILL 60 X 641.36= 38481.6#
ΣW = 184181.6#= 1.42 X BUOYANCY O.K.
NO HOLD DOWNS REQ'D.



ⓑ WATERTABLE @ 9"

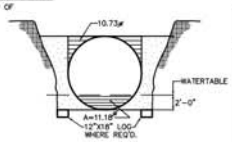
USE 12" X 18" R/C LOG BETWEEN TANKS AND AT SIDES.
WT. OF CONCRETE LOG = 31.48 X 1.5 X 88 = 4155.36#
VOLUME OF BACKFILL OVER LOG
31.48 X 8.68 = 273.24 CU.FT.
WT. OF BACKFILL OVER LOG = 273.24 X 60 = 16394.4#

ΣW = 5156 + 43848 + 96499.2 + 2(4155.36) + 2(16394.4) = 186602.72#
SAFETY FACTOR 1.43 OK.

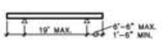


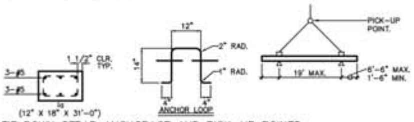
BALLASTING DURING EXCAVATED CONDITION :

PERMITTING FITTERS TO WORK SAFELY ON TOP OF TANK:
(FOR SINGLE OR MULTIPLE TANKS.)
WATERTABLE 2' MAX. IN EXCAVATION
VOLUME OF BACKFILL ABOVE ℄ :
5 X 10 − $\frac{78.54}{2}$ = 10.73 CU.FT.
WT. OF BACKFILL 10.73 X 95 = 1019.35 #
WT. OF TANK 150
ΣW=1169#
WITH 2'-0" WATER IN EXCAVATION
BUOYANCY 11.18 X 62.4 = 697.63 #
SAFETY FACTOR 1.67 OK.



DESIGN OF BALLAST "LOGS" (12" X 18")
MAX. ℓ = 31'-0"
W/ PICK UP @ END POINTS
M_{oh} = 1/2 X .23 X (6.5)^2 = 4.86^{IK}
As = $\frac{4.86}{1.76X9.5}$ = .29 3- #5 (TOP)
Mmax = 7.0^{IK} As $\frac{7.0}{1.76X9.5}$ =.42 3- #5 (BTM.)
USE #2 TIES @ 18" O.C., #4 "LOOPS" @ PICK-UPS.

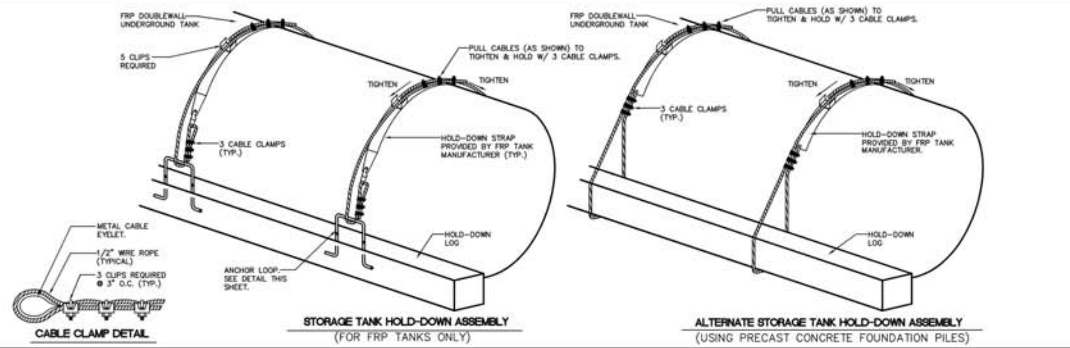




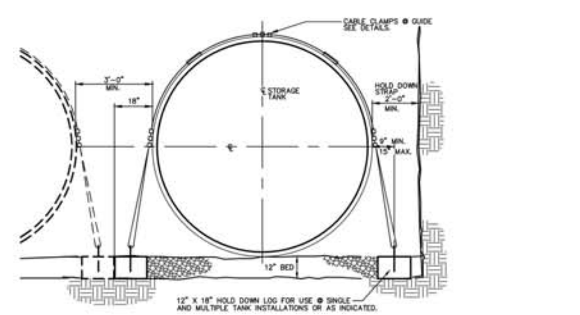
TIE DOWN STRAP ANCHORAGE AND PICK-UP POINTS

USE HOOKED #4 BARS
MAX. LOAD $\frac{31.0}{2}$ X 225 = 3487.50#
Fs = $\frac{3488}{.40}$ = 8720 PSI

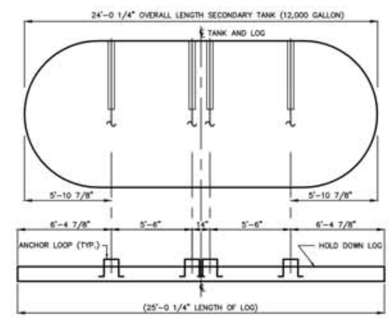
NOTE:
*PICK-UP POINTS SHALL BE AT THE OUTER ANCHOR LOOPS.
*REFER TO TANK DWG'S FOR LOCATION OF ANCHOR STRAP FASTENING HOOKS. WHICH SHALL BE HOT-DIP GALVANIZED.
*TOTAL BALLAST LOG LENGTH SHALL EQUAL TANK LENGTH. (USE SECTIONS AS REQ'D.)



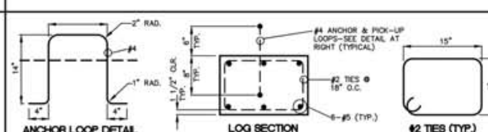
1 HOLD-DOWN ASSEMBLIES
NO SCALE



3 HOLD-DOWN LOG LOCATIONS
3/8"=1'-0"



2 STORAGE TANK HOLD-DOWN LOGS (XERXES 12,000 GALLON TANK)
1/4"=1'-0"



6 HOLD-DOWN LOG REINFORCEMENT DETAILS
1"=1'-0"

SPECIFICATIONS

3.1 TANK HOLD-DOWNS (Tie-Downs):

A. HOLD-DOWN:
When specified the hold-down "logs" shall be installed prior to the bed material.

B. Caution – Do not place FRP tanks on concrete slabs, timbers, beams, cradles or grout the tanks in wet cement. The tank, whether tied down or not, must never be left on the bed without a backfill to the top of the tank if there is any chance of water, 12" or more above the tank bottom, in the hole.

3.2 TANK HOLD-DOWN INSTALLATION

A. GENERAL REQUIREMENTS:
Anchor all underground storage tanks with concrete hold-downs ("logs" or "deadmen") when specified by Chevron Rep. in the Scope of Work.
1. Tank bedding, ballasting and tank hole backfill procedure are described in these specifications.
2. The tank anchorage system shown on the drawings is designed for a maximum level of ground water equal to the subgrade level.

3.3 MATERIALS

A. CONCRETE HOLD-DOWNS: Precast, reinforced concrete "logs", 12" x 12" or 12" x 24" in cross-section, with chamfered edges. Length, as shown on the drawings. 1/2" diameter galvanized steel anchor loops are to be cast into "logs" at locations shown. Precast material shall have achieved its ultimate compressive strength of 2500 psi (28 days) prior to installation.
NOTE: Precast concrete foundation piles which meet or exceed above specifications are acceptable.

B. WIRE ROPE CABLE: Hot-dip galvanized steel wire rope, minimum 1/2" diameter, breaking strength, 20.4K.

C. HARDWARE: Cable clamps, cable guides, guards, etc., furnished by the tank manufacturer, shall be hot-dip galvanized steel.

D. PROTECTIVE COATING: Prior to backfilling tanks, apply a generous quantity of "Chevron Asphalt Coating" by brush to all exposed steel cables, loops and hardware.

3.4 INSTALLATION PROCEDURE:

A. Prepare the tank hole to receive the hold-down "logs". Install shoring (or side sloping) in accordance with Section 1.3.

B. Pump the water out of the tank hole. Keep water out of the tank hole until tanks have been set, tied down, ballasted and backfilled.

C. Insert each cable through its own anchor loop in the "log" reserving sufficient cable so that both ends of the cable will be kept at the top of the tank hole after the "logs" are set. Lower and position the "logs" in the tank hole keeping both ends of the cables at the top of the hole. Install the 12" minimum thick bedding material in tank hole. Smooth and slope per the tank bedding instructions.

D. Proceed with setting the tanks by adding ballast as necessary to sink and keep down the tanks. Use only enough ballast to hold the tanks down until the backfill is even with the top of the tanks. (Refer to Section 1.1 for tank setting requirements.)
Caution: Ballast level in tank must never exceed water (or backfill) level in tank hole during installation.

E. Install the cable guards, guides, etc., furnished by the tank manufacturer on the designated ribs of the tank. (Note: "Designated Ribs" are marked by arrows on the tank surface.)
Caution: Do not place straps or cables between the ribs of the tank.

F. Pass each set of cables (a set of cables are those passing through the matching, or opposite, loops on the "logs") through the guides and loops as shown on the drawing.
1. One end of each cable is to be crossed over the top of the tank in the retainer portion of the hold-down strap. Using three cable clamps on each set of cables, clamp both cables together on top of the tank. Prior to tightening the clamps, tension the cables with "come-a-longs" secured outside the tank hole. Use enough tension to tighten the cables but not to lift the "logs" or crush the tank.
Caution: All sets of cables on a tank must be tightened equally to avoid tank deformation.
2. The cable must rest on the top of the hold-down strap between the guides provided. Repeat this process for each set of tie-down cables.
3. After all tie-downs are completed, commence the backfill procedures to the top of the tanks.

NOTES

1. PICK-UP POINTS FOR LOGS SHALL BE THE OUTER LOOPS.
2. VERIFY LOCATION OF TANK HOLD-DOWN STRAPS WITH TANK MANUFACTURER BEFORE FABRICATION OF HOLD-DOWN LOGS.

MARK	DATE	REVISIONS	INITIAL	MARK	DATE	REVISIONS	INITIAL

Chevron

Barghausen Consulting Engineers, Inc.

670 TROSPER ROAD SW
TUMWATER, WA
CHEVRON STATION - FUEL SYSTEM REPLACEMENT

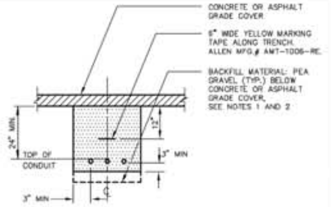
STORAGE TANK HOLD-DOWN INSTRUCTIONS 10' DIAMETER TANKS

MILESTONES	INITIAL	DATE
PRELIMINARY		
PLANNING		
BLDG PERMIT		
GENERAL BID		
PERMIT REV'S		
CONSTRUCTION Do not use drawing for construction unless initialed		

S.S.# 90956
SCALE: AS NOTED
JOB# 21463
SHEET
F-6

P:\21000s\21463\mechanical\tanks\21463-F-6, Hold Downs.dwg 3/15/2021 4:13 PM NPHAN

Pre-plot:[MAR 13, 2008 12:12-lg] Xrefs: "abdr.dwg" "hd.dwg" Images:

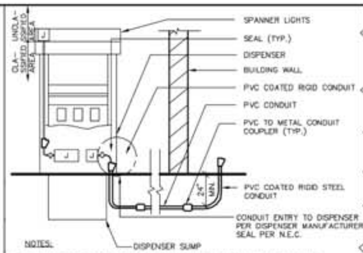


NOTES:

1. BACK FILL AND COMPACTION FOR ALL CONDUIT TRENCHES TO MEET STATE, CITY, COUNTY, AND LOCAL REQUIREMENTS.
2. BACKFILL AND COMPACTION FOR SERVICE LATERAL CONDUIT TRENCH TO MEET LOCAL ELECTRIC UTILITY COMPANY REQUIREMENTS. IF SOIL IS NOT ROCK FREE, ADD 4" TO DEPTH OF SERVICE LATERAL CONDUIT TRENCH.
3. ALL ELECTRICAL CONDUITS TO CROSS PRODUCT PIPING AT 90 DEGREES. ELECTRICAL CONDUITS SHALL NOT SHARE TRENCHES WITH ANY OTHER UTILITIES.

16 CONDUIT TRENCH

NO SCALE

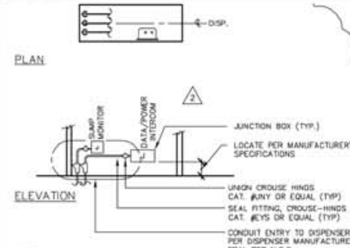


NOTES:

1. THREADED PVC COATED RIGID METAL CONDUIT SHALL BE USED FOR THE LAST 2 FEET OF UNDERGROUND RUN TO EMERGENCE PER N.E.C. 514.
2. UNDERGROUND PVC CONDUIT SHALL BE USED ONLY AS ALLOWED BY N.E.C. 514-8, EXCEPTION NO. 2 AND APPLICABLE LOCAL CODES. VERIFY SUITABILITY WITH ALL APPROPRIATE AGENCIES. PVC CONDUIT SHALL BE SCHEDULE 40 OR HEAVIER WITH ALL PORTIONS BURIED A MINIMUM 2 FEET BELOW GRADE.

9 CONDUIT STUB-UP

NO SCALE

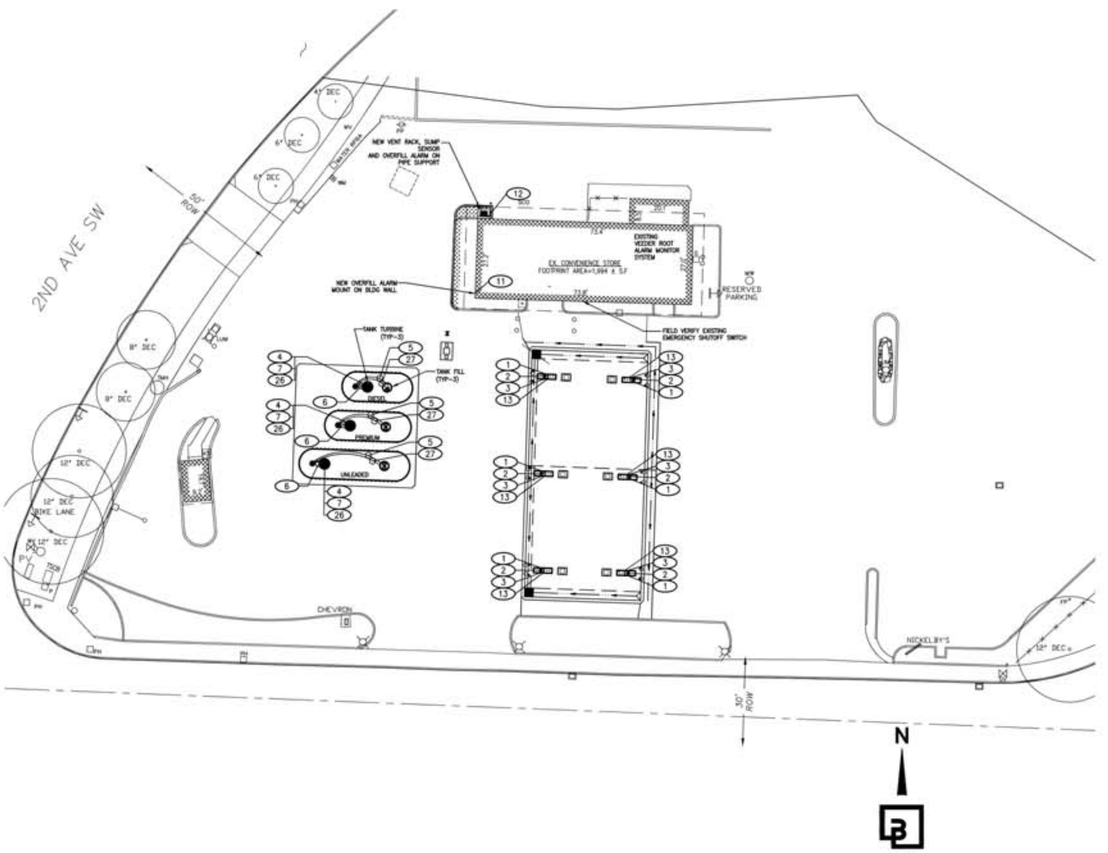


NOTES:

1. VERIFY MANUFACTURER'S DISPENSER DIMENSIONS, MODEL, AND JUNCTION BOX LOCATIONS PRIOR TO STUBBING CONDUITS.
2. VERIFY ORIENTATION OF DISPENSERS PRIOR TO STUBBING CONDUITS.

8 DISPENSER CONDUIT

NO SCALE



Electrical Fueling Site Plan

SCALE: 1" = 20'-0"

1" 20

ELECTRICAL SITE PLAN NOTES

1. CONTRACTOR SHALL PROVIDE AND INSTALL ALL CONDUITS, CONDUCTORS, AND PULL LINES AS SPECIFIED, AND AS NECESSARY TO COMPLETE THE WORK.
2. ELECTRICAL CONDUIT SHALL NOT SHARE TRENCHES WITH ANY OTHER UTILITIES. ALL CONDUIT RUNS SHALL BE GROUPED TOGETHER AS MUCH AS POSSIBLE AND NEATLY LAID PARALLEL IN TRENCHES WITH NO UNNECESSARY CROSS OVERS. RUNS SHALL BE STRAIGHT EXCEPT WHEN CHANGES OF DIRECTION ARE NECESSARY.
3. NO CONDUIT RUN SHALL EXCEED 4 QUARTER BENDS OR 360 DEGREES TOTAL BETWEEN PULLING POINTS.
4. ELECTRICAL CONDUIT INSTALLED UNDERGROUND SHALL BE MINIMUM 3/4" RIGID NONMETALLIC PVC. PVC CONDUIT SHALL BE USED ONLY AS ALLOWED BY N.E.C. 514-8 EXCEPTION No. 2 EXCEPT WHERE PROHIBITED BY LOCAL CODE OR AUTHORITIES HAVING JURISDICTION. VERIFY ACCEPTABILITY WITH ALL APPROPRIATE AGENCIES. ALL UNDERGROUND CONDUITS (INCLUDING SPARE CONDUITS) ENTERING THE BUILDING TO BE PROVIDED WITH SEAL-OFFS AT POINTS OF ORIGIN AS WELL AS POINTS OF TERMINATION, AND SHALL BE LABELED WITH A METAL TAG AS TO THEIR ORIGIN.
5. SERVICE LATERAL CONDUIT, AND TELEPHONE SERVICE CONDUIT, SHALL BE EITHER:
   A. ROUTED IN NON-HAZARDOUS AREAS, OR
   B. SEALED IN ACCORDANCE WITH THE LATEST EDITION OF THE N.E.C. ARTICLES 501.5 AND 514.
6. ANY PORTION OF ELECTRICAL WIRING OR EQUIPMENT WHICH IS BELOW THE SURFACE OF A CLASS I LOCATION (AS DEFINED IN N.E.C. TABLE 514.2) SHALL BE CONSIDERED TO BE IN A CLASS 1, DIVISION 1 LOCATION, WHICH SHALL EXTEND AT LEAST TO THE POINT OF EMERGENCE ABOVE GRADE.
7. PVC CONDUIT SHALL BE SCHEDULE 40 OR HEAVIER WITH ALL PORTIONS BURIED A MINIMUM OF 2' BELOW GRADE. PROVIDE EQUIPMENT GROUND WIRES IN ALL UNDERGROUND CONDUITS, SIZE PER CODE.
8. ALL CONDUIT IN TANK HOLE SHALL BE PVC COATED RIGID STEEL. ONCE OUT OF THE TANK HOLE, PVC MAY BE USED. PVC COATED RIGID STEEL CONDUIT SHALL BE USED FOR RISERS AND LAST TWO FT. OF UNDERGROUND RUN. WITH APPROVAL OF CHEVRON REP, PER CHEVRON SPECIFICATION, WRAPPED RIGID STEEL CONDUIT MAY BE SUBSTITUTED FOR PVC COATED RIGID.
9. WHEN IN GOOD CONDITION, EXISTING CONDUIT AND WIRING FOR CANOPY LIGHTS, SPANNERS, FASCIA SIGNS, AND I.D./PRICE SIGNS MAY BE REUSED. REROUTE CONDUITS TO STARTER/CONTACTOR BOX VIA ELECTRICAL WIREWAY. RESEAL CONDUITS AS REQUIRED PER CODE.
10. EXISTING CONDUIT NOT REUSED SHALL BE ABANDONED. REMOVE CONDUCTORS, THREAD CONDUIT, AND CAP BELOW GRADE.
11. CONDUITS FOR YARD LIGHTS CAN BE LOOPED FROM LIGHT TO LIGHT TO REDUCE THE NUMBER OF HOME RUNS REQUIRED.
12. PROVIDE PLYWOOD BACKBOARD PER TELEPHONE COMPANY REQUIREMENTS.
13. ALL ELECTRICAL WORK SHALL BE IN COMPLIANCE WITH THE LATEST APPLICABLE EDITION OF THE NATIONAL ELECTRICAL CODE AND ALL APPLICABLE STATE AND LOCAL CODES AND ORDINANCES. ALL EQUIPMENT, MATERIALS, AND WIRING METHODS IN HAZARDOUS AREAS SHALL BE IN ACCORDANCE WITH N.E.C. ARTICLES 500 THROUGH 514. SPLICING OF WIRES IS NOT PERMITTED UNDERGROUND OR WITHIN PULL BOXES.
14. ALL ELECTRICAL MATERIAL SHALL BE NEW AND LISTED WITH THE UNDERWRITERS LABORATORIES INC., SHALL MEET THEIR REQUIREMENTS, AND SHALL BEAR THEIR LABEL WHEREVER STANDARDS HAVE BEEN ESTABLISHED AND LABEL SERVICE IS REGULARLY FURNISHED BY THAT AGENCY.
15. NEMA 3R ENCLOSURES TO BE ORDERED FOR ALL EQUIPMENT INSTALLED OUTDOORS.
16. ALL EQUIPMENT SHALL BE GROUNDED IN ACCORDANCE WITH N.E.C. ARTICLES 250 AND 501-16. ALL CONDUIT SHALL HAVE AN EQUIPMENT GROUNDING CONDUCTOR. THE GROUNDING CONDUCTOR SHALL BE BONDED TO THE METAL FRAMES OF ALL FIXED ELECTRICAL EQUIPMENT.
17. ALL LIGHTING FIXTURES SHALL BE INSTALLED COMPLETE WITH ALL FITTINGS, LENSES AND LAMPS.
18. ALL SWITCH PLATES IN OCCUPIED AREAS SHALL BE STAINLESS STEEL. SWITCHES AND RECEPTACLES SHALL BE IVORY. DEDICATED ISOLATED GROUND CIRCUIT RECEPTACLES SHALL BE ORANGE. MOUNT ALL SWITCHES 42" ABOVE FINISH FLOOR UNLESS OTHERWISE NOTED. MOUNT ALL OUTLETS MIN. 18" A.F.F. UNLESS OTHERWISE NOTED. ALL DUPLEX OUTLETS SHALL BE GROUNDED TYPE.
19. ALL BROCHURES, OPERATING MANUALS, CATALOGS, SHOP DRAWINGS ETC., SHALL BE TURNED OVER TO THE OWNER UPON JOB COMPLETION.
20. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, TOOLS, PLANT EQUIPMENT, AND TRANSPORTATION; PERFORM ALL OPERATIONS NECESSARY OR INCIDENTAL TO THE PROPER EXECUTION AND COMPLETION OF ALL 'ELECTRICAL WORK' WHETHER SPECIFICALLY MENTIONED OR NOT. MATERIALS AND EQUIPMENT PROVIDED BY THE OWNER WILL BE AS SPECIFICALLY NOTED.
21. ELECTRICAL DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC AND ALTHOUGH THE SIZE AND LOCATION OF EQUIPMENT ARE SHOWN TO SCALE WHEREVER POSSIBLE, ALL DIMENSIONS AND CONDUIT/CONDUCTOR DATA SHALL BE VERIFIED IN THE FIELD.
22. ELECTRICAL CONTRACTOR SHALL PERFORM ALL CUTTING AND PATCHING OF WALLS, CEILINGS, FLOORS, ETC., FOR INSTALLATION OF OUTLET BOXES, CONCEALED CONDUIT, ETC. ALL PATCHING SHALL MATCH SURROUNDING MATERIAL AND FINISH.
23. COMPLETE JOB SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR AFTER DATE OF ACCEPTANCE BY OWNER. ANY WORK FOUND TO BE DEFECTIVE DURING THAT PERIOD OF TIME SHALL BE CORRECTED AT ONCE, UPON WRITTEN NOTIFICATION, AT THE EXPENSE OF THE CONTRACTOR.
24. PROVIDE THE OWNER WITH ONE SET OF COMPLETE ELECTRICAL 'AS BUILTS' AT THE COMPLETION OF JOB.
25. CONDUCTORS SHALL BE STRANDED COPPER TYPE THHN/THWN, MIN. #12 AWG, UNLESS OTHERWISE NOTED. CONDUCTORS AND THEIR TERMINATIONS ARE RATED AT 75°C
26. EACH CONDUCTOR OF EVERY SYSTEM SHALL BE PERMANENTLY TAGGED IN EACH PANELBOARD, PULLBOX, J-BOX, ETC., IN COMPLIANCE WITH THE DEPARTMENT OF OCCUPATIONAL SAFETY AND HEALTH (OSHA)
27. ROUTING OF ALL ELECTRICAL WIRING MUST BE INSTALLED IN CONDUIT. CONDUIT SHOWN IN DRAWINGS IS SCHEMATIC ONLY.
28. ALL EMPTY CONDUITS SHALL BE EQUIPPED WITH 3/16" POLYPROPYLENE PULL LINES. CAP ALL EMPTY CONDUITS.
29. EACH DISPENSER IS PROVIDED WITH A SWITCHED NEUTRAL BREAKER THAT MEETS THE REQUIREMENTS OF NEC 514.
30. PROVIDE A 6"X12" SIGN (WHITE W/ RED LETTERING) ABOVE EACH EMERGENCY SHUT OFF SWITCH. LABEL IT AS "EMERGENCY FUEL SHUT DOWN DEVICE"
31. PROVIDE A WEATHERPROOF TOGGLE SWITCH AT EACH NEW INTERNALLY ILLUMINATED SIGN, PER NEC 600-6.
32. INSTALL SEALS AS REQUIRED IN THE CONDUITS FOR DISPENSER SPANNER LIGHTING. REFER TO DETAIL 9. THE SEALING FITTINGS SHALL BE U.L. LISTED, USE ONLY APPROVED "SEALING COMPOUND" TO MAINTAIN U.L. LISTING, EXAMPLE CHICO SEALING COMPOUND FOR CROUSE – HINDS SEALS OR KWIKO SEALING COMPOUND FOR APPLETON SEALS.

UNDERGROUND CONDUIT SCHEDULE

DIV\ELECT\SW\16115050

CONDUIT				CONDUCTOR			CONDUIT ROUTING		REMARKS
NUMBER	SIZE	TYPE		NO.	SIZE	TYPE	FROM	TO	
1	1"		*	4 / 10+G	#16 / #12	THWN	OPS PANEL	DISPENSER J-BOX	DATA / POWER
2	3/4"	*		1	BELDEN #8723		CASHIER AREA		INTERCOM
3	3/4"	*		2	BELDEN #8760		TLS 350 CONTROL PANEL	DISPENSER SUMP	PAN SUMP SENSOR & HYDROSTATIC SUMP SENSOR
4	1"	*		3 / 3	BELDEN #8760 / BELDEN #8760		TLS 350 CONTROL PANEL	TANK TURBINE SUMP	ANNULAR SPACE PROBE & TLM / SUMP SENSOR & FILL
5	3/4"	*		1 / 1	BELDEN #8760 / BELDEN #8760		TANK TURBINE SUMP	TANK FILL SUMP	TLM / SUMP SENSOR
6	3/4"	*		2	BELDEN #8760			ANNULAR SPACE PROBE	ANNULAR SPACE PROBE
7	3/4"		* / *	2+G / 2+G	#12 / #10	THWN	OPS PANEL	PUMP MOTOR	RUN < 100' / RUN > 100'
11	3/4"	PVC		5+G	#12	THWN	TLS 350 CONTROL PANEL	VENT RISER	OVERFILL ALARM
12	3/4"	PVC		2	BELDEN #8760		VENT RISER	TLS 350 CONTROL PANEL	PAN SUMP SENSOR & HYDROSTATIC SUMP SENSOR
13	3/4"	RMC		4+G	BELDEN #[illegible]		[illegible]	I.D. & PRICE SIGN	
26	1"	PVC		3	BELDEN #8760		TANK TURBINE SUMP	TLS 350 CONTROL PANEL	VACUUM SENSORS
27	1"	PVC		NONE			TANK TURBINE SUMP	FILL SUMP	FOR VACUUM SENSOR

* PVC CONDUIT SHALL BE SCHEDULE 40 OR HEAVIER WITH ALL PORTIONS BURIED A MINIMUM OF 2" BELOW GRADE. PVC COATED GALVANIZED THREADED RIGID STEEL CONDUIT SHALL BE USED FOR ALL RISERS, AND LAST 2' OF UNDERGROUND RUN, ALL CONDUITS IN TANK HOLE AND SHALL BE PVC COATED FOR SUPPLEMENTARY CORROSION PROTECTION.

* NOTE: BARGHAUSEN CONSULTING ENGINEERS DID NOT PERFORM AN EVALUATION OF THE EXISTING CONDITIONS. HENCE, THE CURRENT DRAWINGS NOTE FOR REPLACEMENT OF ALL DISPENSERS. CONTRACTOR TO SURVEY EXISTING CONDITIONS AND CONFIRM WITH OWNER REGARDING SCOPE OF WORK PERTAINING TO DISPENSERS DURING THE BID AND PRIOR TO DISPENSER REPLACEMENT.

MARK	DATE	REVISIONS	INITIAL	MARK	DATE	REVISIONS	INITIAL

Chevron

670 TROSPER ROAD SW

TUMWATER, WA

CHEVRON STATION - FUEL SYSTEM REPLACEMENT

ELECTRICAL
SITE PLAN, DETAILS AND NOTES

Barghausen Consulting Engineers, Inc.

DIGALERT Call Toll Free 811 TWO WORKING DAYS BEFORE YOU DIG

HAL P. GRUBB STATE OF WASHINGTON 23975 REGISTERED PROFESSIONAL ENGINEER 10/07/22

MILESTONES	INITIAL	DATE
PRELIMINARY		
PLANNING		
BLDG PERMIT		
GENERAL BID		
PERMIT REV'S		
CONSTRUCTION Do not use drawing for construction unless initialed		

S.S.# 90956

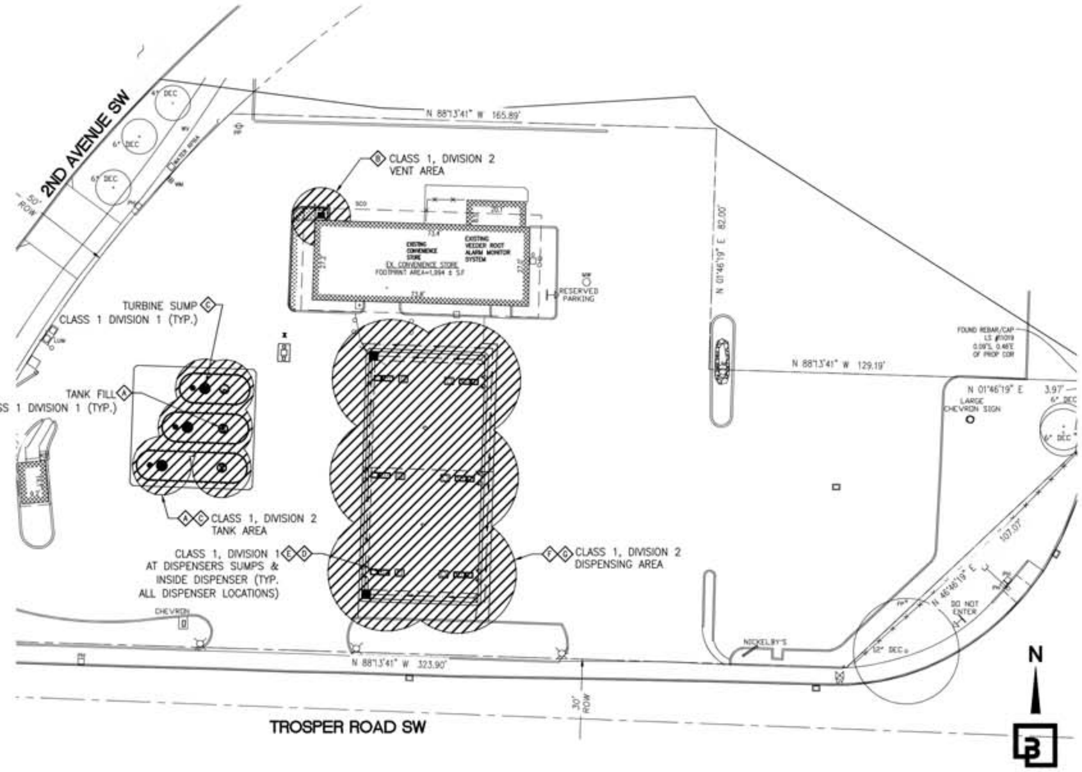
SCALE: AS NOTED

JOB# 21463

SHEET

ES1-0

P:\21000s\21463\mechanical\tanks\21463-ES1-0 ELECTRICAL SITE PLAN, DETAILS AND NOTES.dwg 10/5/2022 1:58 PM NPHAN



Class 1, Division 1 and 2 Hazardous Area Plan

SCALE: 1" = 20'-0"

0 10' 20' 40'
1" 20

N.E.C. HAZARDOUS AREA NOTES

(A) TYPICAL N.E.C. ARTICLE 514 CLASS 1 LOCATION (UNDERGROUND TANK – FILL OPENING)
EXTENT OF CLASS 1, GROUP D, DIVISION 1 LOCATION:
ANY PIT, BOX, OR SPACE BELOW GRADE LEVEL, ANY PART OF WHICH IS WITHIN THE DIVISION 1 OR 2 CLASSIFIED LOCATION.
EXTENT OF CLASS 1, GROUP D, DIVISION 2 LOCATION:
UP TO 18 INCHES ABOVE GRADE LEVEL WITHIN A HORIZONTAL RADIUS OF 10 FEET FROM A LOOSE FILL CONNECTION AND WITHIN A HORIZONTAL RADIUS OF 5 FEET FROM A TIGHT FILL CONNECTION.

(B) TYPICAL N.E.C. ARTICLE 514 CLASS 1 LOCATION (UNDERGROUND TANK – VENT-DISCHARGING UPWARD)
EXTENT OF CLASS 1, GROUP D, DIVISION 1 LOCATION:
WITHIN 5 FEET OF OPEN END OF VENT, EXTENDING IN ALL DIRECTIONS.
EXTENT OF CLASS 1, GROUP D, DIVISION 2 LOCATION:
SPACE BETWEEN 5 FEET AND 10 FEET OF OPEN END OF VENT, EXTENDING IN ALL DIRECTIONS.

(C) TYPICAL N.E.C. ARTICLE 514 CLASS 1 LOCATION (REMOTE PUMP – OUTDOOR)
EXTENT OF CLASS 1, GROUP D, DIVISION 1 LOCATION:
ANY PIT, BOX, OR SPACE BELOW GRADE LEVEL IF ANY PART IS WITHIN A HORIZONTAL DISTANCE OF 10 FT. FROM ANY EDGE OF PUMP.
EXTENT OF CLASS 1, GROUP D, DIVISION 2 LOCATION:
WITHIN 3 FEET OF ANY EDGE OF PUMP, EXTENDING IN ALL DIRECTIONS. ALSO UP TO 18 INCHES ABOVE GRADE LEVEL WITHIN 10 FEET HORIZONTALLY FROM ANY EDGE OF PUMP.

(D) TYPICAL N.E.C. ARTICLE 514 CLASS 1 LOCATION (DISPENSING DEVICE – PITS)
EXTENT OF CLASS 1, GROUP D, DIVISION 1 LOCATION:
ANY PIT, BOX, OR SPACE BELOW GRADE LEVEL, ANY PART OF WHICH IS WITHIN THE DIVISION 1 OR 2 CLASSIFIED LOCATION.

(E) TYPICAL N.E.C. ARTICLE 514 CLASS 1 LOCATION (DISPENSING DEVICE – DISPENSER)
EXTENT OF CLASS 1, GROUP D, DIVISION 1 LOCATION:
SPACE CLASSIFICATION INSIDE THE DISPENSER ENCLOSURE IS COVERED IN ANSI/UL 87, "POWER OPERATED DISPENSING DEVICES FOR PETROLEUM PRODUCTS."

(F) TYPICAL N.E.C. ARTICLE 514 CLASS 1 LOCATION (DISPENSING DEVICE – DISPENSER)
EXTENT OF CLASS 1, GROUP D, DIVISION 2 LOCATION:
WITHIN 18 INCHES HORIZONTALLY IN ALL DIRECTIONS EXTENDING TO GRADE FROM (1) THE DISPENSER ENCLOSURE OR (2) THAT PORTION OF THE DISPENSER ENCLOSURE CONTAINING LIQUID HANDLING COMPONENTS.

(G) TYPICAL N.E.C. ARTICLE 514 CLASS 1 LOCATION (DISPENSING DEVICE – OUTDOOR)
EXTENT OF CLASS 1, GROUP D, DIVISION 2 LOCATION:
UP TO 18 INCHES ABOVE GRADE LEVEL WITHIN 20 FEET HORIZONTALLY OF ANY EDGE OF ENCLOSURE.

* NOTE: BARGHAUSEN CONSULTING ENGINEERS DID NOT PERFORM AN EVALUATION OF THE EXISTING CONDITIONS. HENCE, THE CURRENT DRAWINGS NOTE FOR REPLACEMENT OF ALL DISPENSERS. CONTRACTOR TO SURVEY EXISTING CONDITIONS AND CONFIRM WITH OWNER REGARDING SCOPE OF WORK PERTAINING TO DISPENSERS DURING THE BID AND PRIOR TO DISPENSER REPLACEMENT.

MARK	DATE	REVISIONS	INITIAL	MARK	DATE	REVISIONS	INITIAL

Chevron

Barghausen Consulting Engineers, Inc.

HAL P. GRUBB, STATE OF WASHINGTON, 23975, REGISTERED PROFESSIONAL ENGINEER, 10/07/22

MILESTONES	INITIAL	DATE
PRELIMINARY		
PLANNING		
BLDG PERMIT		
GENERAL BID		
PERMIT REV'S		
CONSTRUCTION Do not use drawing for construction unless initialed		

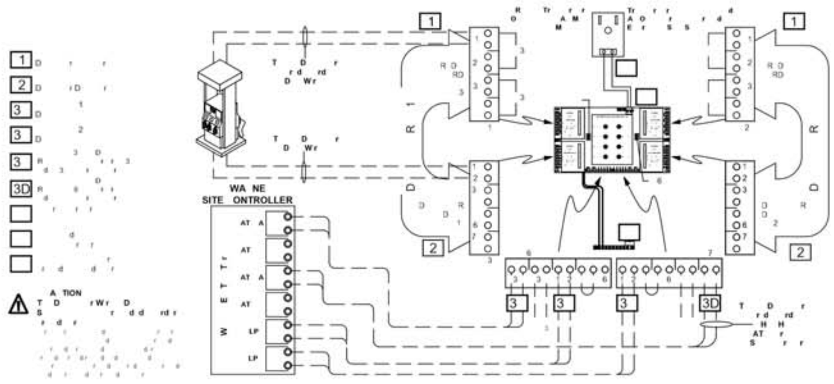
670 TROSPER ROAD SW
TUMWATER, WA
CHEVRON STATION - FUEL SYSTEM REPLACEMENT

ELECTRICAL HAZARDOUS AREA SITE PLAN AND NOTES

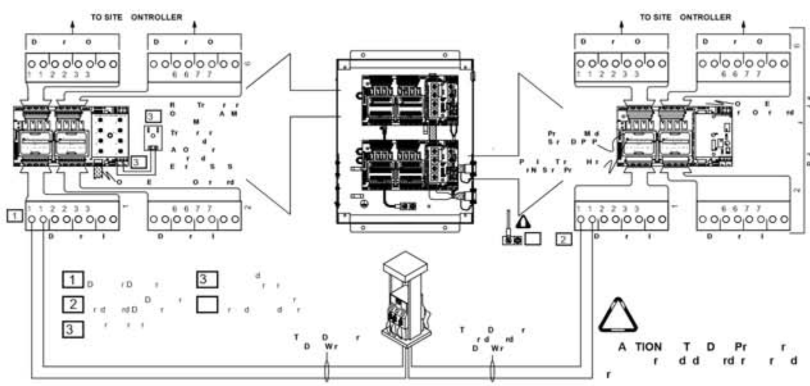
S.S.# 90956
SCALE: AS NOTED
JOB# 21463

SHEET
ES1-1

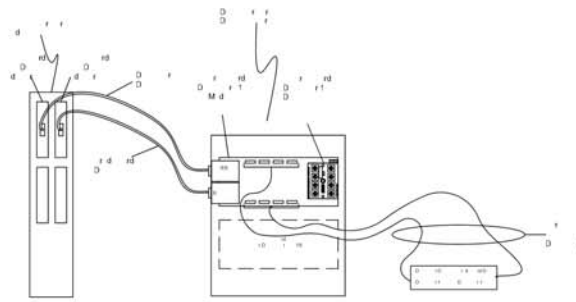
P:\21000s\21463\mechanical\tanks\21463-ES1-1 ELECTRICAL HAZARDOUS SITE PLAN AND NOTES.dwg 10/5/2022 1:59 PM NPHAN



D D R M D



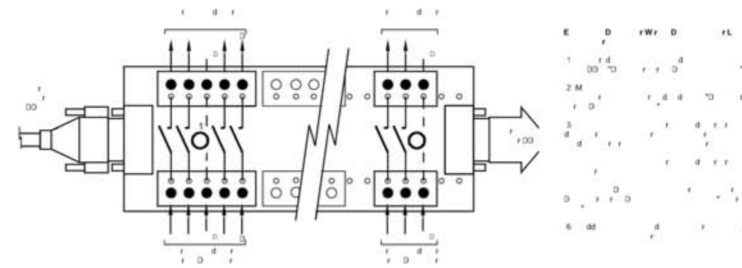
D D R M D R D



D D R M D D

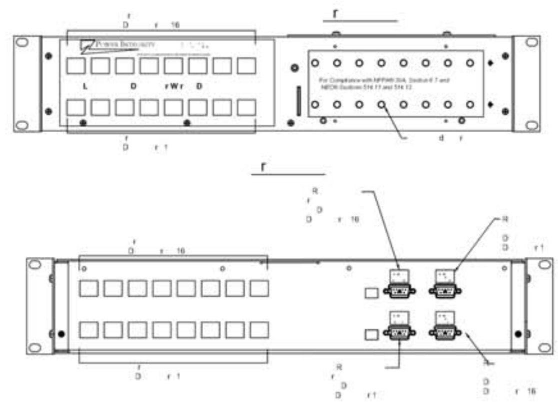
D D R M R

NOT TO SCALE:



D D R M D R MD

NOT TO SCALE:



D D R M D R D

NOT TO SCALE:

MARK	DATE	REVISIONS	INITIAL	MARK	DATE	REVISIONS	INITIAL

Chevron

Barghausen Consulting Engineers, Inc.

670 TROSPER ROAD SW
TUMWATER, WA
CHEVRON STATION - FUEL SYSTEM REPLACEMENT

ELECTRICAL
FUELING LOW VOLTAGE
DISCONNECT CONTROLS

MILESTONES	INITIAL	DATE
PRELIMINARY		
PLANNING		
BLDG PERMIT		
GENERAL BID		
PERMIT REV'S		
CONSTRUCTION Do not use drawing for construction unless initialed		

HAL P. GRUBB, STATE OF WASHINGTON, 23975, REGISTERED PROFESSIONAL ENGINEER, 10/07/22

SS# 90956
SCALE: AS NOTED
JOB# 21463

SHEET
E2-0

P:\21000s\21463\mechanical\tanks\21463-E2-0 FUELING LOW VOLTAGE CONTROLS.dwg 4/7/2021 3:25 PM NPHAN

BARGHAUSEN

STORMWATER SITE PLAN

Chevron
Underground Storage Tank Replacement

370 Trosper Road SW
Tumwater, WA 98512

City File No. TBD

11/07/2022

Prepared for:
Chevron Station, Inc.
575 Market Street.
San Francisco, CA 94015

November 7, 2022
Our Job No. 21463

BARGHAUSEN CONSULTING ENGINEERS, INC.
18215 72ND AVENUE SOUTH KENT, WA 98032 P) 425.251.6222 F) 425.251.8782
BRANCH OFFICES: CHEHALIS, WA KLAMATH FALLS, OR LONG BEACH, CA RICHLAND, WA ROSEVILLE, CA
barghausen.com

Stormwater Site Plan

Barghausen Consulting Engineers, Inc.

Chevron Underground Storage Tank Replacement

Tumwater, Washington

Our Job No. 21463

TABLE OF CONTENTS

12.0 BOND QUANTITIES WORKSHEET

Tab 1.0

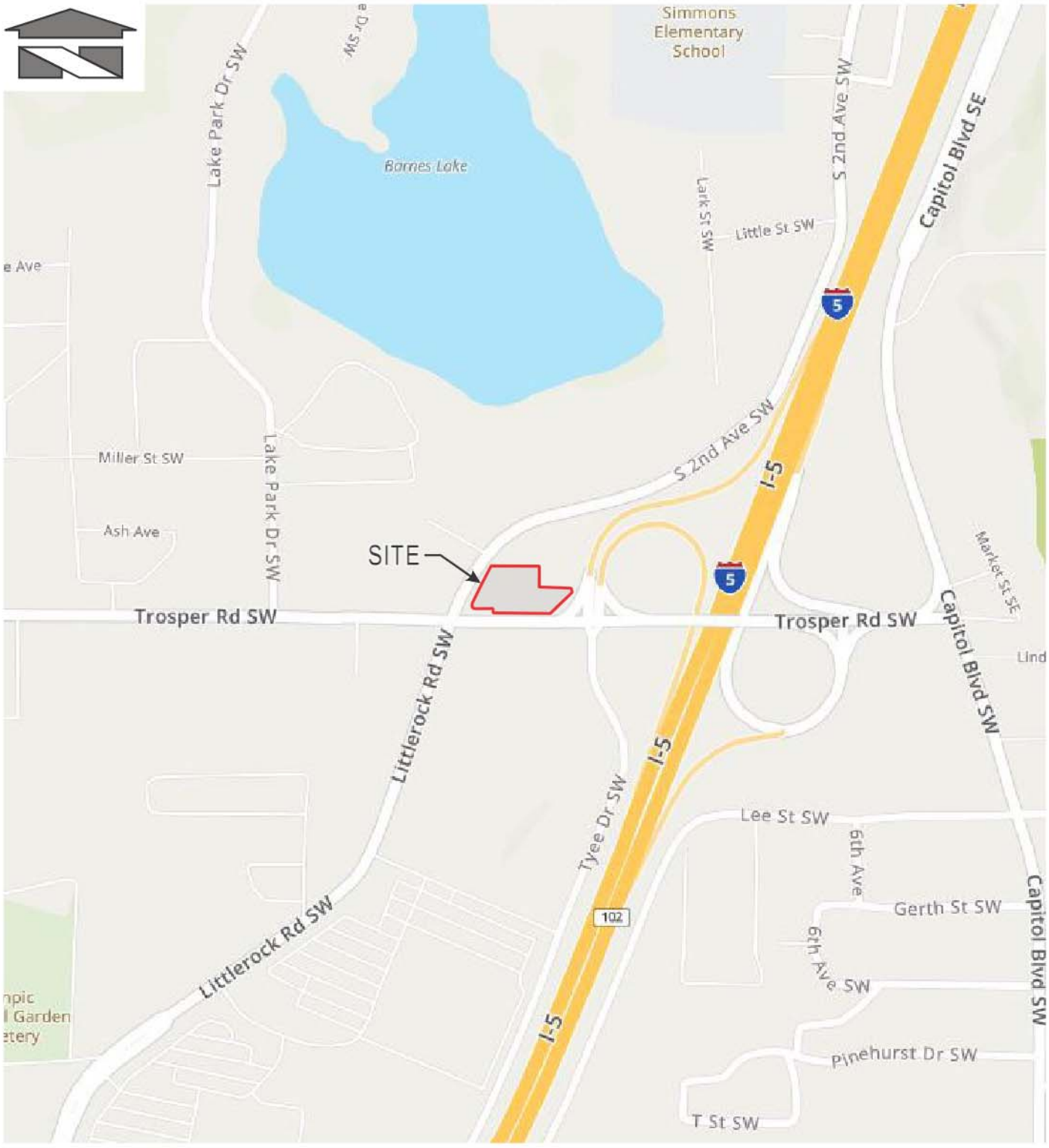
1.0 PROJECT OVERVIEW

The project proposes the removal of existing underground storage tanks, fuel piping, and fuel dispensers, and the installation of new underground storage tanks, fuel piping, and fuel dispensers at an existing Chevron fuel station located on a single property with tax parcel number 09080091002. The site address is 670 Trosper Road S.W., Tumwater, WA 98512, and is situated within Section 34, Township 18 North, Range 2 West of the Willamette Meridian in Thurston County, WA. The site is currently developed with an existing fuel station, convenience store, and associated driving surfaces. Onsite vegetation consists primarily of landscaping associated with a typical commercial development.

The project will propose the demolition and removal of the existing fuel tanks, and fuel system, including the existing fuel dispensers. After the demolition phase, the project proposes to install new underground storage tanks, fuel system, fuel dispensers, and replace driving surfaces demolished during the removal of the existing fuel system.

The development proposes less than 5,000 square feet of new and replaced hard surface and the proposed value of the improvements is not anticipated to exceed 25 percent of the assessed value, currently at $2,141,700, per the online Thurston County Assessor Portal; with that said, the redevelopment is required to address Minimum Requirement Nos. 1 through 5, and 11 of the 2022 City of Tumwater Drainage Design and Erosion Control Manual. This stormwater site plan will aim to address the applicable drainage requirements and provide information and data to support the project's design intent. See Figure 2.1 for the flow chart for determining the minimum requirements.

Figure 1.1 – Vicinity Map



REFERENCE: MapQuest (2021)

Scale: Horizontal: N.T.S. Vertical: N/A	For: Chevron Tumwater, Washington	Job Number 21463
Barghausen Consulting Engineers, Inc. 18215 72nd Avenue South Kent, WA 98032 425.251.6222 barghausen.com	Title: VICINITY MAP	DATE: 3/26/21

P:\21000s\21463\exhibit\graphics\21463 vmap.cdr

Tab 2.0

2.0 CONDITIONS AND REQUIREMENTS SUMMARY

Minimum Requirement No. 1: Preparation of Stormwater Site Plan:

Response: This report serves as the stormwater site plan to address this requirement.

Minimum Requirement No. 2: Construction Stormwater Pollution Prevention:

Response: The Construction Stormwater Pollution Prevention Plan (CSWPPP) for this project is located in Section 6.0 of this report.

Minimum Requirement No. 3: Source Control Prevention:

Response: The project will implement all necessary and required Source Control Measures to adequately address Minimum Requirement No. 3 per the 2019 Department of Ecology SWMMWW. This will include ensuring that drainage from the fueling area beneath the fueling canopy is hydraulically isolated from the surrounding improvements and drains to the sanitary sewer system.

Minimum Requirement No. 4: Preservation of Natural Drainage System and Outfalls:

Response: The project proposes to retain the current discharge point to the public storm network and does not anticipate any negative impacts to the existing off-site storm network.

Minimum Requirement No. 5: On-Site Stormwater Management:

Response: The project will implement applicable BMPs to the maximum extent feasible. See Section 5.3 for a discussion of feasibility of on-site stormwater management BMPs.

Minimum Requirement No. 6: Runoff Treatment:

Response: The project proposes less than 5,000 SF of new and replaced pollution generating hard surface, and therefore does not trigger the requirements to provide water quality treatment. Please see Section 5.6 of this report for a more detailed discussion.

Minimum Requirement No. 7: Flow Control:

Response: The project proposes less than 10,000 SF of new and replaced impervious area, and therefore does not trigger the requirement for flow control.

Minimum Requirement No. 8: Wetland Protection:

Response: The project will not impact any existing wetlands.

Minimum Requirement No. 9: Operation and Maintenance

Response: Operation and Maintenance Manuals/documents will be submitted during Final Engineering Review.

Figure 2.1 – Flow Chart for Determining Requirements for Redevelopment

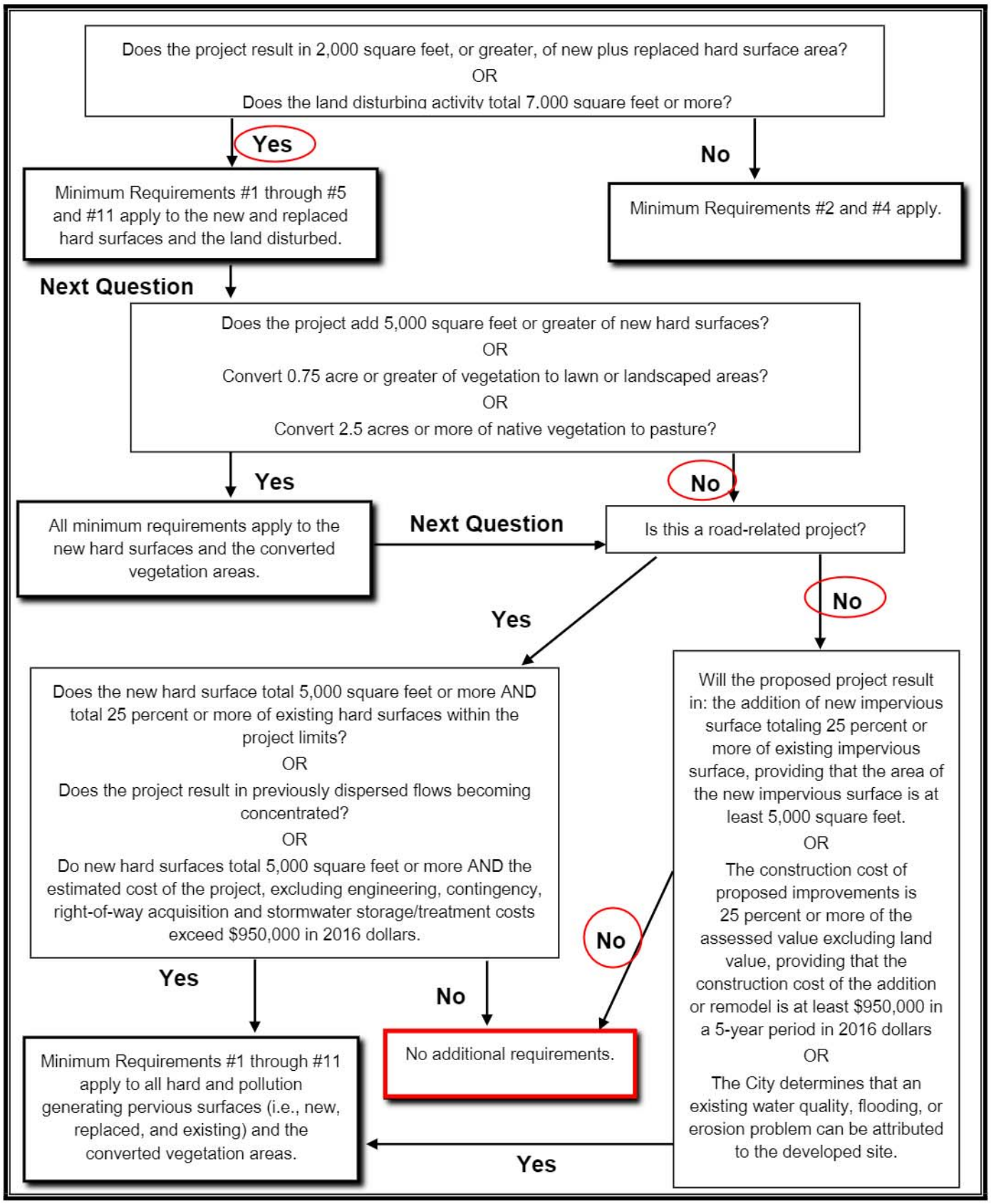


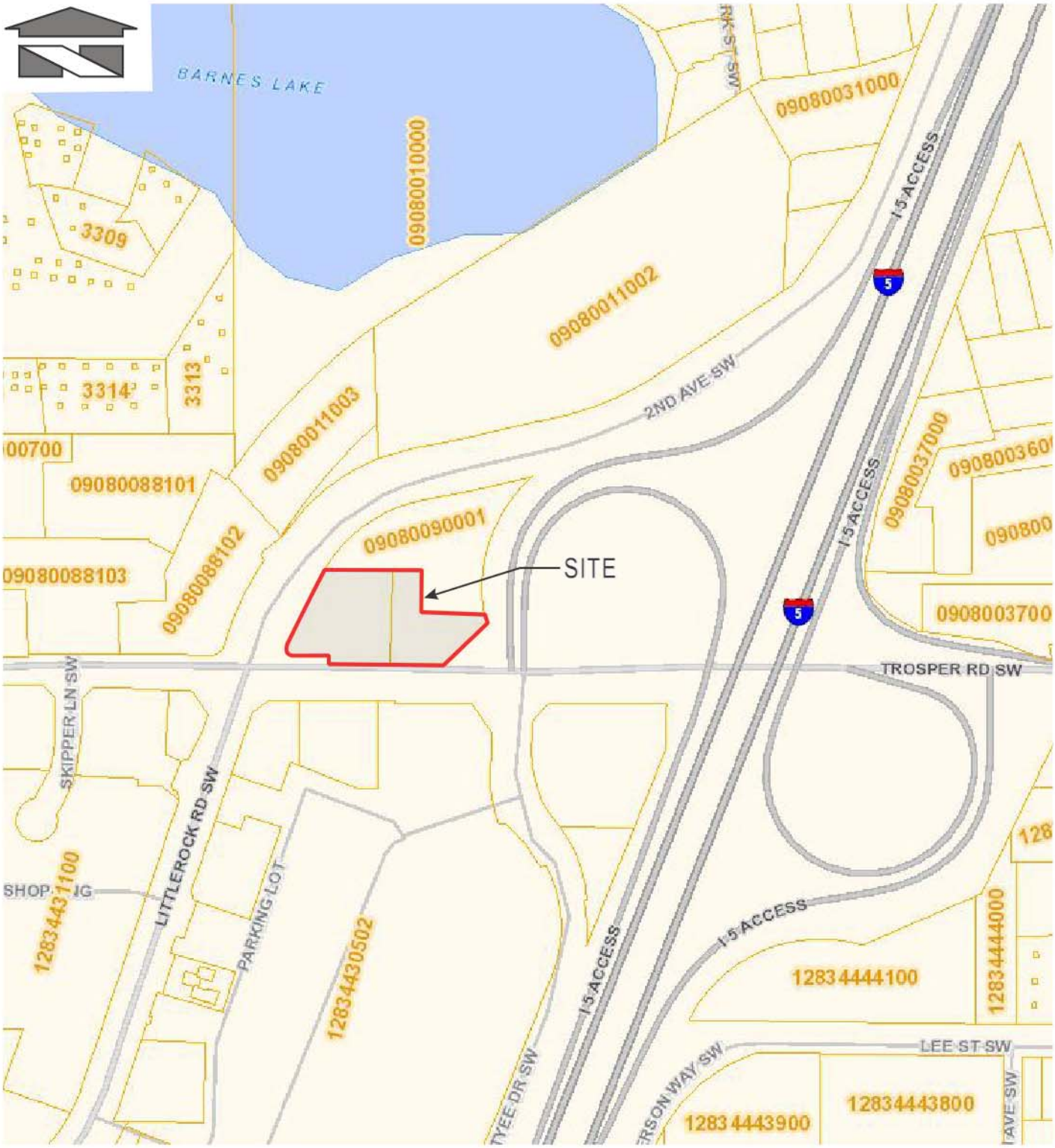
Figure 2.2. Flow Chart for Determining Requirements for Redevelopment.

Tab 3.0

3.0 EXISTING CONDITIONS SUMMARY

The existing site is located adjacent to South 2nd Avenue S.W., and Trosper Road S.W. along its south and west boundaries. A commercial development is located just east of the project site. Currently, the project site serves as an existing fuel station with a convenience store, and pertinent paved driving surfaces. Existing vegetation includes landscaping typical of commercial development. Existing underground utilities include an existing stormwater conveyance, water, sanitary sewer, and power. The existing impervious areas cover more than a total of 35 percent of the site area, and therefore, this project is defined as a redevelopment project. Site topography is generally flat, with existing grades sloping between 1 and 5 percent from east to west. The site does not contain any critical areas or wetlands, and does not appear to be within the immediate vicinity of a critical area. In the existing condition stormwater within the limits of the project is currently collected by on-site catch basins.

Figure 3.1 –
Assessor's Map

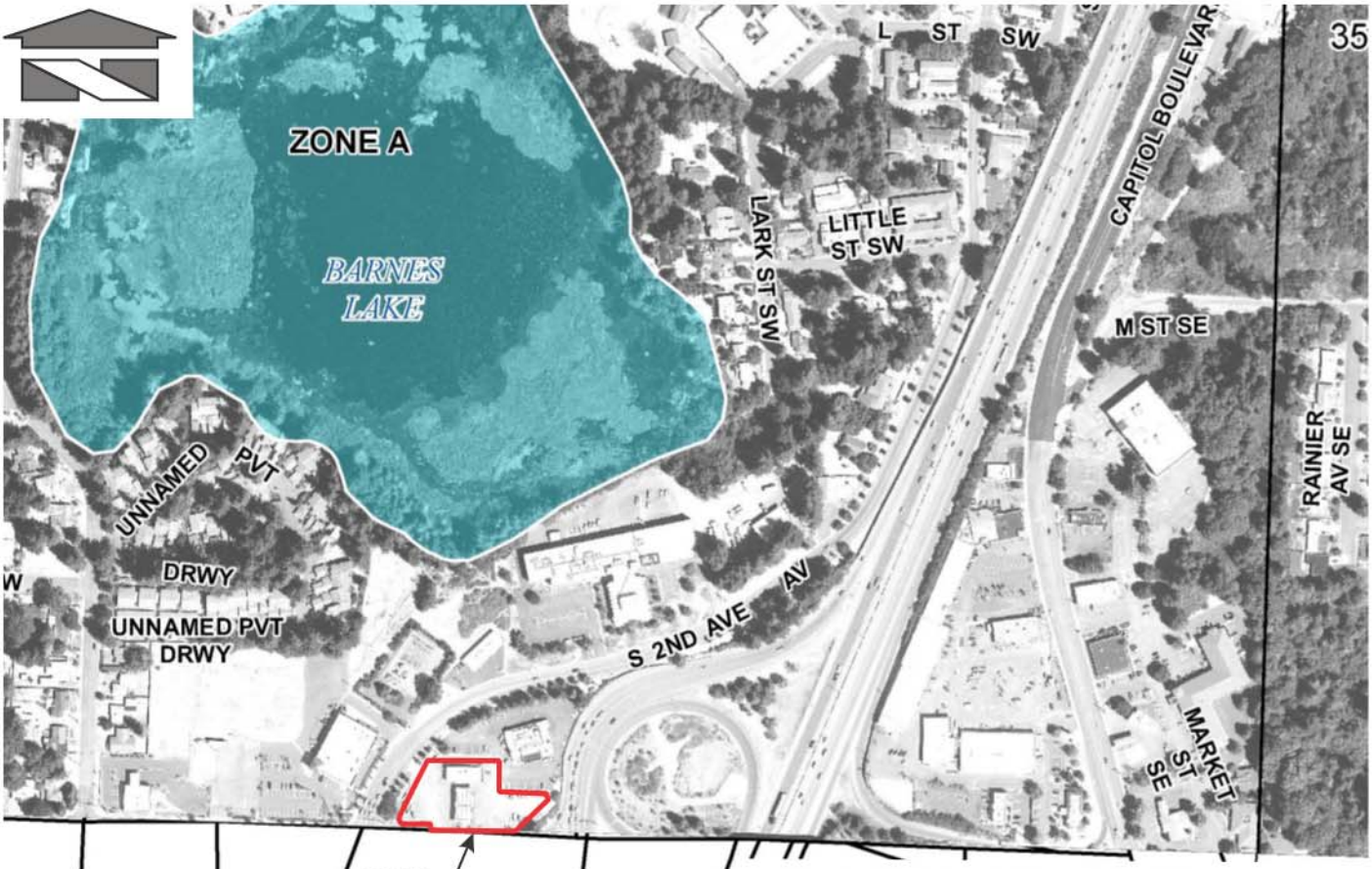


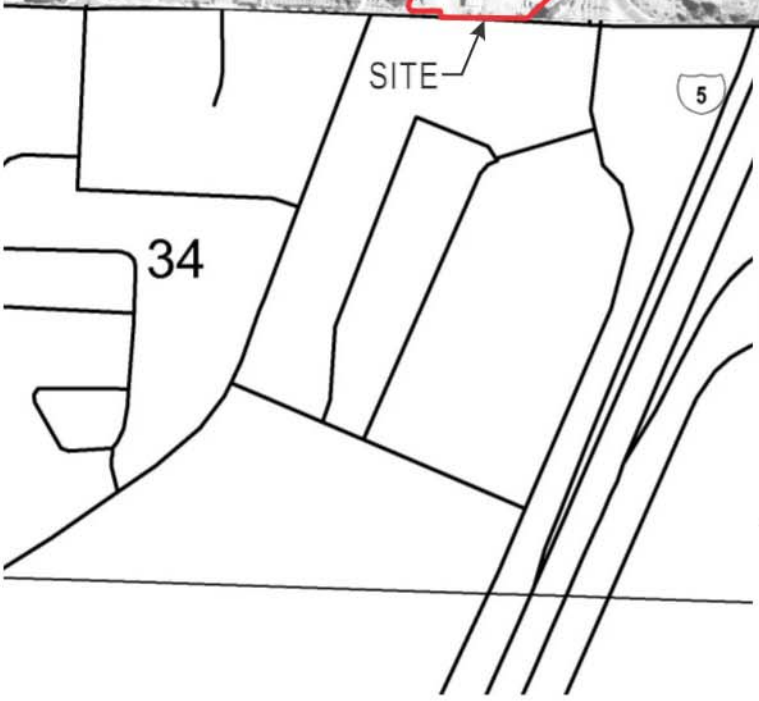
REFERENCE: www.geodata.org

Scale: Horizontal: N.T.S. Vertical: N/A	For: Chevron Tumwater, Washington	Job Number 21463
Barghausen Consulting Engineers, Inc. 18215 72nd Avenue South Kent, WA 98032 425.251.6222 barghausen.com	Title: ASSESSOR MAP	DATE: 3/26/21

P:\21000s\21463\exhibit\graphics\21463 amap.cdr

Figure 3.2 –
FEMA Map





FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT HTTP://MSC.FEMA.GOV

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) *Zone A, V, A99*
	With BFE or Depth *Zone AE, AO, AH, VE, AR*
	Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD	0.2 % Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
	Future Conditions 1% Annual Chance Flood Hazard *Zone X*
	Area with Reduced Flood Risk due to Levee See Notes. *Zone X*
OTHER AREAS	NO SCREEN Areas of Minimal Flood Hazard *Zone X*
	Area of Undetermined Flood Hazard *Zone D*

REFERENCE: Federal Emergency Management Agency (Portion of Map 53067C0168G, May 2018)

Scale:
Horizontal: **N.T.S.** Vertical: **N/A**

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222 **barghausen.com**

For:
Chevron
Tumwater, Washington

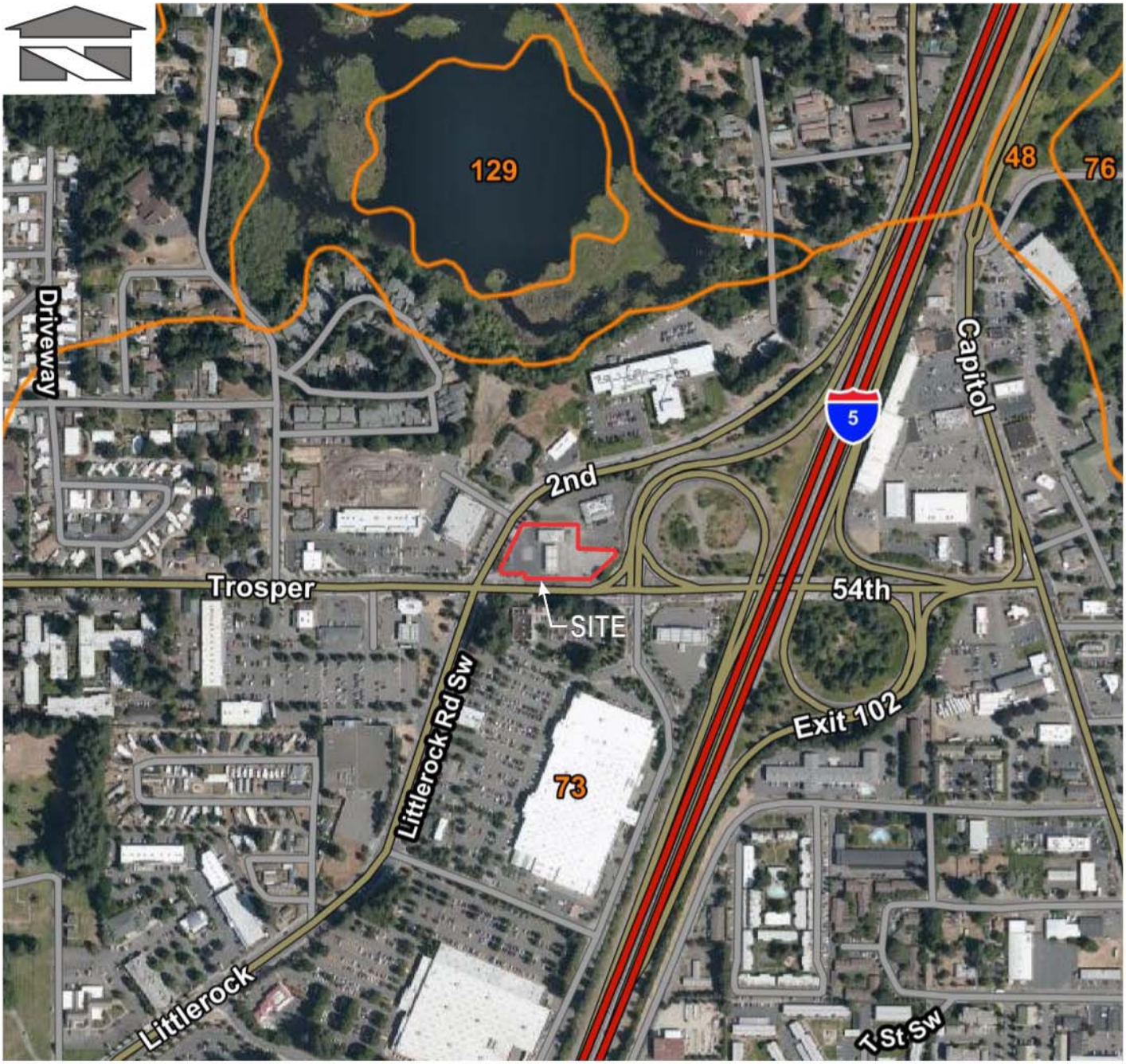
Job Number
21463

Title:
FEMA MAP

DATE: 3/26/21

P:\21000s\21463\exhibit\graphics\21463 fema.cdr

Figure 3.3 – Soil Survey Map



REFERENCE: USDA, Natural Resources Conservation Service

LEGEND:	HSG
73 = Nisqually loamy fine sand, 0-3% slopes	A

Scale:
Horizontal: **N.T.S.** Vertical: **N/A**

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222 **barghausen.com**

For:
Chevron
Tumwater, Washington

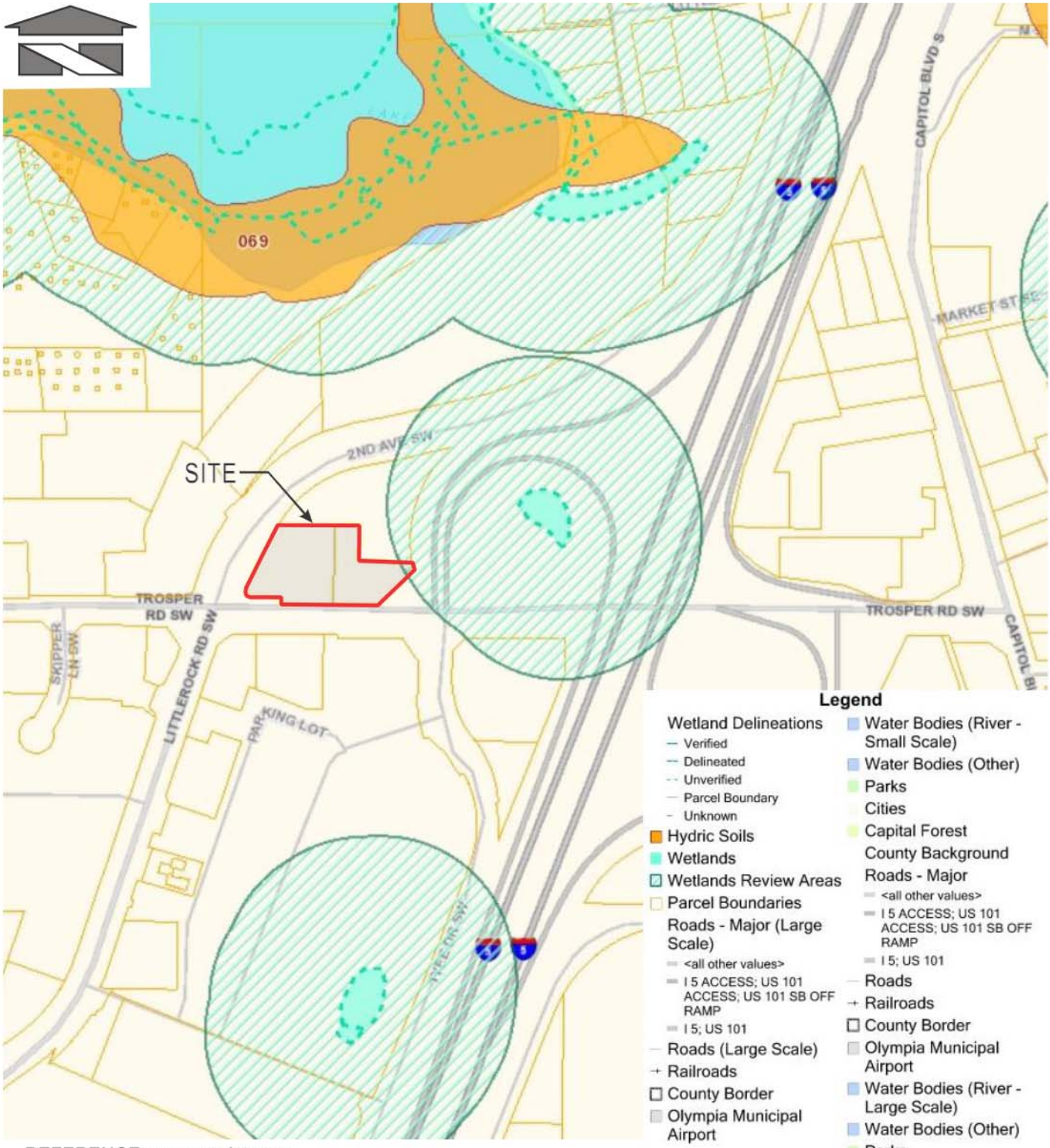
Title:
SOIL SURVEY MAP

Job Number
21463

DATE: 3/26/21

P:\21000s\21463\exhibit\graphics\21463 soil.cdr

Figure 3.4 – Sensitive Areas Map



REFERENCE: www.geodata.org

Scale:
Horizontal: **N.T.S.** Vertical: **N/A**

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222 **barghausen.com**

For:
Chevron
Tumwater, Washington

Job Number
21463

Title:
SENSITIVE AREAS MAP

DATE: 3/26/21

P:\21000s\21463\exhibit\graphics\21463 sens.cdr

Tab 4.0

4.0 OFF-SITE ANALYSIS REPORT

The redevelopment proposes a similar drainage pattern to the current conditions. This project proposes to retain all existing drainage patterns at the site, and does not trigger the requirements for flow control.

Tab 5.0

5.0 PERMANENT STORMWATER CONTROL PLAN

This section contains the following information:

5.1 Existing Site Hydrology

5.2 Developed Site Hydrology

5.3 On-Site Stormwater Management

5.4 Performance Standards and Goals

5.5 Flow Control System

5.6 Water Quality System

5.1 Existing Site Hydrology

The existing topography of the site exhibit slopes ranging from 1 to 5 sloping down generally from east to west, refer to figure 5.1.1 for the existing basin map. Currently, it appears that run-off sheet flows over the site before it is collected by an existing catch basin and conveyed through storm pipes found near the northwest corner of the site.

Figure 5.1.1 – Existing Basin Map

PROJECT GROUND COVER

ON-SITE AREAS

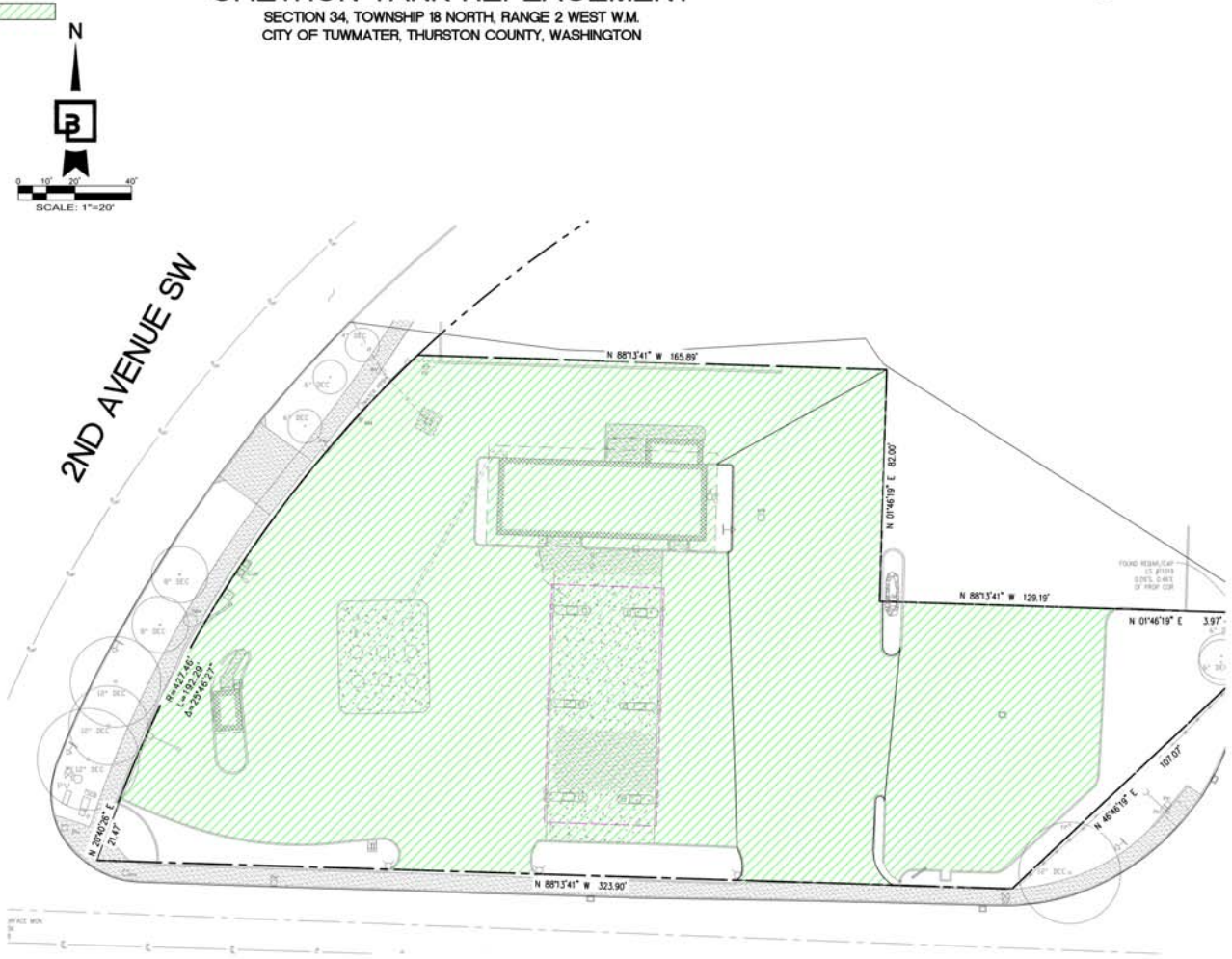
EXISTING IMPERVIOUS AREA = 46,341 SF

EXISTING BASIN MAP
FOR
CHEVRON TANK REPLACEMENT

SECTION 34, TOWNSHIP 18 NORTH, RANGE 2 WEST W.M.
CITY OF TUWMATER, THURSTON COUNTY, WASHINGTON

Chevron Northwest Region

811 Know what's below. Call before you dig. Dial 811



No.	Date	By	Chk	Appr.	Revision

Title: EXISTING BASIN MAP FOR CHEVRON 90956 TUMWATER 670 TROSPER ROAD SW TUMWATER WA. 98512

For: CHEVRON STATION, INC. 575 MARKET STREET SAN FRANCISCO, CA 94015

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

Designed JDF
Drawn JDF
Checked ADM
Approved CRJ
Date 10/4/22

Scale: Horizontal 1" = 10' Vertical N.A.

Job Number 21463

Sheet 1 of 1

5.2 Developed Site Hydrology

The proposed re-development consists of the demolition, and removal of the existing on-site fueling system, including the replacement of USTs, fuel dispensers, and piping. The proposed grading scheme will maintain the existing on-site drainage patterns allowing the site to drain to the existing catch basins as it does in the current condition. The existing fuel canopy is proposed to be hydraulically isolated from the surrounding improvements and will drain to the sanitary sewer system meeting the project source control requirements.

See Figure 5.2.2 for the Developed Basin Map.

Figure 5.2.2 – Developed Basin Map

DEVELOPED BASIN MAP
FOR
CHEVRON TANK REPLACEMENT
SECTION 34, TOWNSHIP 18 NORTH, RANGE 2 WEST W.M.
CITY OF TUMWATER, THURSTON COUNTY, WASHINGTON

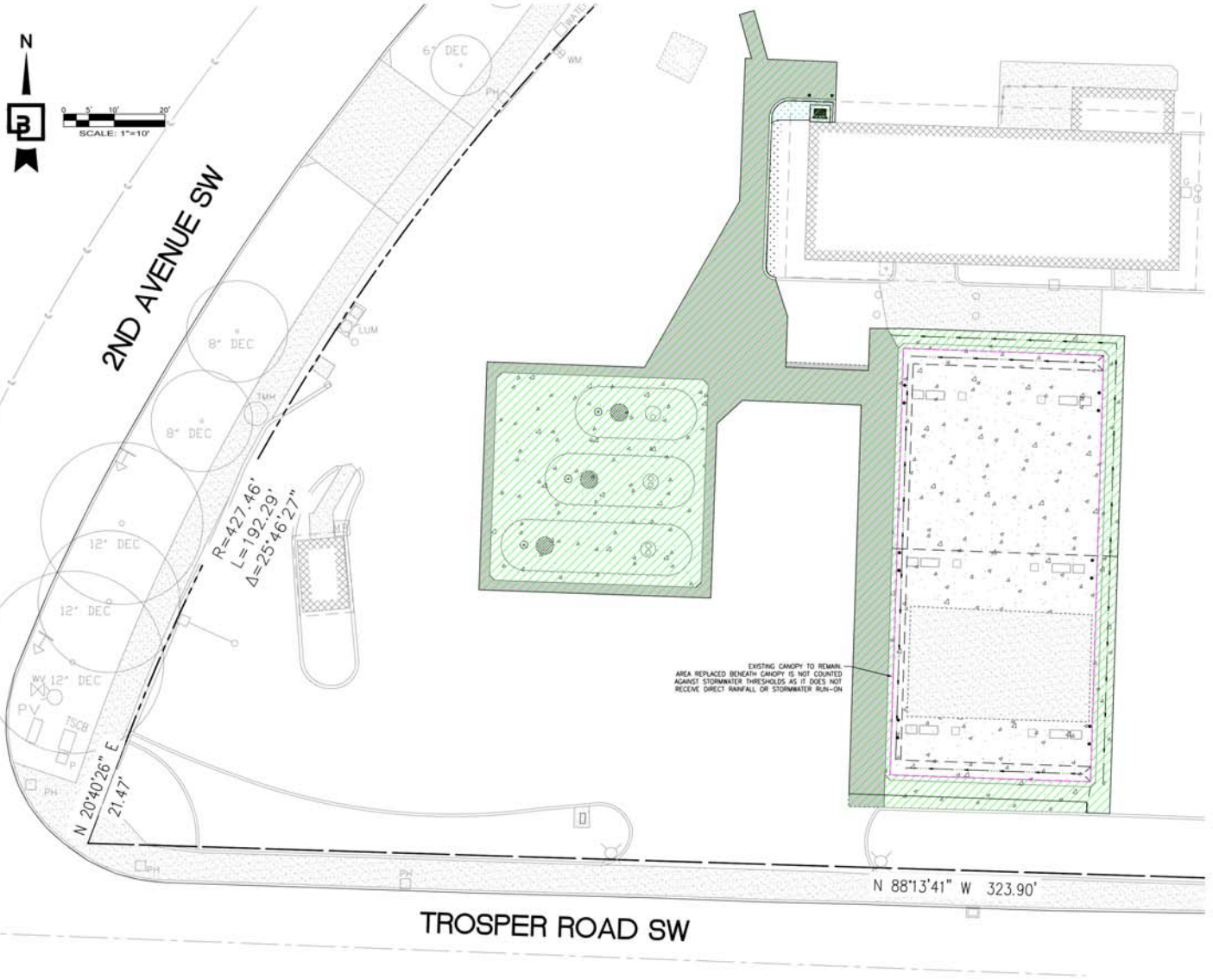
Chevron Northwest Region

811 Know what's below. Call before you dig. Dial 811

PROJECT GROUND COVER

ON-SITE AREAS

NEW AND REPLACED HARD SURFACES	= 4,634 SF
NEW AND REPLACED LANDSCAPING	= 31 SF
TOTAL DISTURBED	= 4,665 SF



No.	Date	By	Chk	Appr.	Revision

Title: DEVELOPED BASIN MAP
FOR
CHEVRON 90956 TUMWATER
670 TROSPER ROAD SW
TUMWATER WA. 98512

For: CHEVRON STATION, INC.
575 MARKET STREET
SAN FRANCISCO, CA 94015

Designed JDF
Drawn JDF
Checked ADM
Approved CRJ
Date 10/4/22

Scale: Horizontal 1" = 10' Vertical N.A.

Barghausen Consulting Engineers, Inc.
18215 72nd Avenue South
Kent, WA 98032
425.251.6222
barghausen.com

Job Number 21463

Sheet 1 of 1

5.3 On-Site Stormwater Management

This project triggers minimum requirements No. 1-5 of the City of Tumwater Drainage Design and Erosion Control Manual, and therefore must either evaluate the feasibility of the LID items provided in List No. 1, or demonstrate compliance with the LID performance standard. The project proposes to evaluate the feasibility of the items provided in List No. 1.

Lawn and Landscaped Areas

1. Post Construction Soil Quality and Depth in Volume V, Chapter 6.

   Feasible: Post construction soil quality and depth will be applied to all proposed landscaping areas.

Roofs – NA this project does not propose new or replaced roof areas.

Other Hard Surfaces

1. Full Dispersion in Volume V, Section 7.2

   Infeasible: Full dispersion is infeasible due to the lack of available native vegetated flow path space.

2. Permeable pavement1 in Volume V, Chapter 11, or rain gardens in Volume V, Chapter 10, or bioretention in Volume V, Chapter 9. The rain garden or bioretention area must have a minimum horizontal projected surface area below the overflow that is at least 5 percent of the area draining to it.

   Infeasible: Due to the use of the site, permeable pavements are infeasible for the replaced impervious areas as they will primarily consist of driving surfaces associated with the replaced fueling system. Additionally, rain gardens, or biorientation areas are infeasible due to the presence of the proposed underground storage tanks.

3. Sheet flow dispersion or concentrated flow dispersion in volume V, Sections 7.3, and 7.4.

   Infeasible: Sheet flow dispersion is infeasible due to the lack of available flow path space.

5.4 Flow Control System

This project proposes less than 10,000 sf of replaced impervious area, and therefore does not trigger the requirement for flow control.

5.5 Water Quality System

This project proposes less than 5,000 sf of new and replaced PGIS, and therefore does not trigger the requirement for water quality treatment.

Source Control of pollution will be provided by hydraulically isolating the pavement beneath the existing fuel canopy, and draining the under canopy area to the sanitary sewer system per section A2.2 of the City of Tumwater Drainage Design Manual.

Tab 6.0

6.0 CONSTRUCTION STORMWATER POLLUTION PREVENTION PLAN

A complete SWPPP will be provided upon subsequent submittal.

Tab 7.0

7.0 SPECIAL REPORTS AND STUDIES

NA – No Special Reports have been provided for the project at this time.

Tab 8.0

8.0 OTHER PERMITS

Permit information will be included during Final Engineering Review.

Tab 9.0

9.0 OPERATIONS AND MAINTENANCE MANUAL

An operations and maintenance manual is provided in this section.

Figure 9.1 – Operations and Maintenance Manual

Tab 10.0

10.0 DECLARATION OF COVENANT FOR PRIVATELY MAINTAINED FLOW CONTROL AND TREATMENT FACILITIES

A Declaration of Covenant does not appear to be applicable to the project at this time.

Tab 11.0

11.0 DECLARATION OF COVENANT FOR PRIVATELY MAINTAINED ON-SITE STORMWATER MANAGEMENT BMPS

A Declaration of Covenant does not appear to be applicable to the project at this time.

Tab 12.0

12.0 BOND QUANTITIES WORKSHEET

Bond Quantities may be provided to the City upon request.

City of Tumwater
Drainage Design and Erosion Control Manual

Stormwater Facility Maintenance Guide

Revised July 2022

Prepared for
City of Tumwater

Stormwater Facility Maintenance Guide

Maintenance Standards

The following pages contain facility-specific maintenance standards, which are intended to be observable conditions for determining whether maintenance actions are required.

Table of Contents

Maintaining Stormwater Facilities

All stormwater facilities need to be maintained. Regular maintenance ensures proper functioning and keeps the facility aesthetically appealing. This Stormwater Facility Maintenance Guide was designed to help explain how stormwater facilities work and provide user-friendly guidance on how to maintain facilities to keep them functional and up to standards.

As a facility owner or homeowners' association, you are responsible for regularly maintaining your privately-owned drainage facilities such as ponds, infiltration systems, rain gardens, catch basins, and pipes. (The City of Tumwater maintains stormwater facilities located in the public right-of-way.)

Most large development sites (typically projects larger than one single-family property) will have developed a detailed Maintenance and Source Control Manual as part of the site development (refer to Drainage Control Plan Maintenance and Source Control Manual requirements in Volume 1, Chapter 3, Section 3.3.3 of the City of Tumwater Drainage Design and Erosion Control Manual). The city requires that the Maintenance and Source Control Manual is transferred with the property to the new owner(s) and responsible parties. The Maintenance and Source Control Manual will provide extensive information on the project, the stormwater facilities on the site, maintenance responsibilities, and maintenance activities that may include. Be sure to locate the Maintenance and Source Control Manual for your project and follow the information presented therein. Where you believe a Maintenance and Source Control Manual exists for your property but is not available, please contact the city to request a copy.

For sites that do not have a Maintenance and Source Control Manual (typically smaller, single-family sites), the following instructions and helpful tips for successful facility inspections and maintenance are provided.

Maintenance Checklists

The checklists in this guide are for you to use when inspecting and maintaining the stormwater facilities for which you are responsible. If you are missing a particular checklist, or if you have additional facilities not identified or addressed in this guide, please contact your site developer, design engineer, or the city.

The checklists are in table format for ease of use and brevity. Each checklist tells you what part of the feature to check, how often to check, what to check for, and the desired outcome after maintenance is performed. Log sheets are included to help you keep track of when you last surveyed the stormwater drainage system.

Although it is not intended for the inspection to involve anything too difficult or strenuous, there are a few tools that will make the job easier and safer. These tools include:

- Gloves
- A flashlight (to look into catch basins, manholes, or pipes)
- A long pole or broom handle (see below)

- Some kind of pry bar or lifting tool for pulling manhole and grate covers
- Standard yard tools, such as a rake and a shovel
- Measuring tool

A listing of resources is also included within this guide (see next page). Here you will find the phone numbers of the agencies referred to in the tables.

Safety Warning:

For your safety and per OSHA regulations, you should never stick your head or any part of your body into a manhole or other type of confined space. When looking into a manhole or catch basin, stand above it and use the flashlight to help you see. Use a pole or broom handle that is long enough when you are checking sediment depths in confined spaces. Always properly replace grates and lids.

NO PART OF YOUR BODY SHOULD BREAK THE PLANE OF THE OPEN HOLE.

Checklist Instructions

The following pages contain maintenance checklists covering most of the needs for the components of your drainage system, as well as for some components that you may not have (you can ignore those checklists that don't apply to your system). Let city staff know if there are any components of your drainage system you do not recognize or are missing from these pages.

Refer to the City of Tumwater Stormwater System Code, TMC 13.12 for additional stormwater maintenance requirements, including required maintenance frequency.

Using photocopies of these checklists and the log sheet, check off the problems that you look for each time you do an inspection. Add comments regarding problems found and actions taken on the log sheet. Keep the completed forms in your files for future reference.

You may call the City of Tumwater Water Resources and Sustainability Department at 360-754-4140 for technical guidance. Please do not hesitate to call, especially if you are unsure whether a situation you have discovered may be a problem.

Resource Listing

If you are unsure whether a problem exists, please contact the city at the number below and ask for technical assistance with your situation. Other resources are listed for your convenience and as references associated with the checklists.

Tumwater Water Resources and Sustainability Department
360-754-4140 <https://www.ci.tumwater.wa.us/departments/water-resources-sustainability>.

Tumwater Utility Operations Department
360-754-4150 < https://www.ci.tumwater.wa.us/departments/water-resources-sustainability/utility-operations>.

City of Tumwater Spill Reporting Hotline
360-754-4150 <https://www.ci.tumwater.wa.us/departments/water-resources-sustainability/utility-operations/report-a-public-works-problem>.

City of Tumwater Transportation and Engineering Department
360-754-4140 < https://www.ci.tumwater.wa.us/departments/transportation-engineering>.

Thurston County Environmental Health
Hazardous Waste Disposal (oil, paint, pesticides, etc.)
360-754-4111 <http://www.co.thurston.wa.us/HEALTH/ehhw/index.html>.

Solid Waste Disposal (yard waste, construction waste, contaminated soils, etc.)
360-786-5136 <https://www.thurstoncountywa.gov/phss/Pages/eh-garbagedumping.aspx.>

WSU Thurston Co. Extension (Water Resource Ed. Programs, Envir. Stewardship info.)
360-786-5445 <http://thurston.wsu.edu/water/>.

Log Sheet

Use copies of this log sheet to keep track of when maintenance inspections occur and what items, if any, are repaired or replaced. The completed sheets will serve as a record of past maintenance activities and will provide valuable information on how your facilities are operating. Keep all log sheets in a designated area so others can easily access them.

Location: _____	**Date Checked:**
Checked By: _____	_____
Name: _____	
Address: _____	**Phone:**
City: _____ **Zip:** _____	_____

Facility	Component Checked	Observations

Stormwater Facility Inspection and Maintenance Procedure

Stormwater facilities play an important role in managing the 4 feet of rainfall we receive in Tumwater in an average year. The term "stormwater facility" refers to any landscaped or structural feature that collects, conveys, cleans, or infiltrates runoff water. There are many types of stormwater facilities, ranging from simple swales and ponds to more complicated filter systems and flow control devices. Your on-site stormwater facilities work together to control runoff water, reduce flooding, and prevent pollution.

Owners of commercial property, multifamily residential property, or single-family residential properties with privately-owned drainage and stormwater facilities are required by City of Tumwater Codes to maintain their facilities to established standards for full functionality (City of Tumwater Stormwater System Code, TMC 13.12). Facility owners are responsible for performing inspections of stormwater facilities, and for performing any maintenance identified by the inspections.

Basic maintenance work may be performed by the owner or property manager, although some tasks are best left to an experienced contractor. The inspection of stormwater facilities and any required maintenance work must be completed and reported annually to the City of Tumwater Water Resources and Sustainability Department by August 31each year.

Again, note that most large development sites will also have a Maintenance and Source Control Manual that was prepared as part of the site development, and should have been provided to the property owners. Look to your site's Maintenance and Source Control Manual for information on the project, the facilities on the site, maintenance responsibilities, and maintenance activities. Where a Maintenance and Source Control Manual is not available, the following steps are provided as general guidance:

Step 1. Identify

The first step is facility identification, so you know what types of stormwater facilities you have. Look on the site plan of your property, and note the main facility types indicated (such as rain gardens and infiltration trenches), along with related drainage components (such as catch basins, pipes, and debris barriers). Locate the various facilities on the ground.

Note that most drainage systems consist of components for four main purposes: stormwater collection (e.g., catch basins), conveyance (e.g., pipes and swales), water quality treatment (e.g., wet ponds) and flow control (via infiltration and/or surface discharge).

To assist you in identifying components, refer to the definitions and illustrations on the pages that follow.

Step 2. Inspect

For all facility components that you have identified, conduct an inspection. You may conduct the inspection yourself and/or with co-owners, or you may use a property

manager or vendor to perform the inspection. Refer to the following Stormwater Facility Maintenance Checklists, which describe the maintenance standards for each component, and also identify and describe defects and their remedies.

For each facility, note on the Inspection and Maintenance Checklist the condition of the facility (good, fair, or poor), and any problems or other observations.

Step 3. Maintain

For all facility components, if the inspection indicates maintenance is needed, have the work performed by competent personnel. Basic maintenance tasks may be performed by the property owner(s) or property manager, but difficult or potentially dangerous tasks should be performed by a qualified vendor. Be safe! Use caution when inspecting and working on or near facilities, and stay out of confined spaces such as catch basins and manholes.

Note the action taken and the date, and record this information on the Log Sheet. Mark the check boxes on the Inspection and Maintenance Checklist corresponding to the maintenance accomplished on each facility.

Step 4. Submit

Inspections should be completed once per year using the Private Stormwater Facility Inspection Form. The form can be filled out online or printed out and mailed to the City of Tumwater. Forms are due by August 31 each year. The forms can be accessed here:

https://www.ci.tumwater.wa.us/departments/water-resources-sustainability/water-resources/stormwater/stormwater-programs/private-system-maintenance.

Submit hardcopies of the completed inspection form to: Tumwater Water Resources, 555 Israel Road SW, Tumwater, WA 98501. The completed checklist may be mailed, e-mailed (if available), or delivered in person to Tumwater City Hall, Water Resources and Sustainability counter (basement).

Culvert:

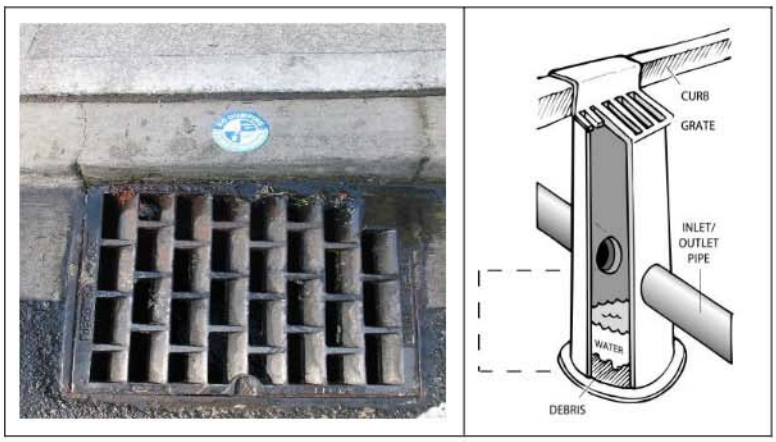
A pipe that continues conveyance flow from a ditch or swale under the ground surface, typically under driveways and cross-streets. Usually connects ("daylights") to another ditch, swale or pond. The end of a pipe or culvert is often surrounded by rock "riprap" (as in photo below, right) to prevent soil erosion.

Actions to keep culverts functioning:

- Remove debris, litter, and obstructions from the openings at the culvert ends.
- Remove soil, sod, and vegetation buildup from the culvert openings.
- Replace rock riprap at the culvert ends.
- Repair any damage to the culvert ends.

Catch Basin:

An underground concrete box structure with a slotted metal grate on top that collects runoff water from the ground surface. Typically located within pavement in parking lots and in the street gutter, usually next to a curb. Grate on top lets water in and keeps larger debris out. Sediment settles in the sump in the bottom (below the pipe openings) and must be removed periodically. Catch basins have an outlet pipe between the grate and the sump, to let the cleaner water flow out to a storm pond or other location. Some catch basins have both inflow and outflow pipes, to convey collected runoff water through.



Actions to keep catch basins functioning:

- Remove litter, leaves, debris, and obstructions from catch basin grates.
- Hire a professional to remove sediment buildup from sump (if road is privately owned; catch basins in the public right-of-way are maintained by the city).

2b. Catch Basins

These structures are typically located in the streets. The City of Tumwater is responsible for routine maintenance of the pipes and structures in the public rights-of-way, while the property owner or homeowners' association is responsible for maintenance of pipes and catch basins in private areas and for keeping the grates clear of debris in all areas.

Catch Basins					
Drainage System Feature	**Problem or Defect**	**Conditions to Check For**	**Maintenance Required (Y/N)**	**What To Do for Desired Condition**	**Date Maintenance Completed**
General	Trash and Debris	Trash, leaves, or debris which is located immediately in front of the catch basin opening or is blocking inflow capacity of the basin by more than 10 percent.		Remove trash, leaves and debris located directly in front of catch basin or on grate.	
		Trash or debris (in basin) that exceeds 33 percent of the sump depth as measured from 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 of clearance from the debris surface to the invert of the lowest pipe.		Remove and properly dispose of all trash and debris. Refer to "Volume IV Appendix IV-C: Recommendations for Management of Street Wastes" for proper disposal of sediment from street runoff.	
		Trash or debris in any inlet or outlet pipe blocking more than 33 percent (one-third) of its height.		Remove and properly dispose of all trash and debris.	
		Dead animals or vegetation that could generate odors that could cause complaints or dangerous gases (e.g., methane).		Remove dead animals, etc., present within the catch basin.	
	Sediment	Sediment (in basin) exceeds 33 percent of sump depth as measured from the bottom of basin to invert of lowest pipe into or out of basin, but in no case less than a minimum of 6 inches of clearance from the sediment surface to the invert of lowest pipe.		Remove and properly dispose of sediment in the catch basin. Refer to "Volume IV Appendix IV-C: Recommendations for Management of Street Wastes" for proper disposal of sediment from street runoff.	

Catch Basins					
Drainage System Feature	**Problem or Defect**	**Conditions to Check For**	**Maintenance Required (Y/N)**	**What To Do for Desired Condition**	**Date Maintenance Completed**
General	Structure Damage to Frame and/or Top Slab	Top slab has holes larger than 2 square inches or cracks wider than 0.25 inch (intent is to make sure no material is running into basin).		Patch or seal top slab as needed. Re-set grate frame as needed.	
	Structure Damage to Frame and/or Top Slab	Frame not sitting flush on top slab, i.e., separation of more than 0.75 inch of the frame from the top slab. Frame not securely attached.		Repair or re-set frame as needed.	
	Fractures or Cracks in Basin Walls/ Bottom	Maintenance person determines structure is unsound.		Replace or repair basin to design standard.	
		Grout fillet has separated or cracked wider than 0.5 inch and longer than 1 foot at the joint of any inlet/outlet pipe, or any evidence of soil entering basin.		Re-grout pipe and secure at basin wall.	
	Settlement/ Misalignment	If failure of basin has created a safety, function, or design problem.		Replace or repair basin to design standards.	
	Vegetation	Vegetation growing across and blocking more than 10 percent of the basin opening.		Remove vegetation blocking opening to basin.	
		Vegetation growing in inlet/outlet pipe joints that is more than 6 inches tall and less than 6 inches apart.		Remove vegetation or root growth.	
	Contamination and Pollution	Presence of contaminants such as oil, gasoline, concrete slurries, paint, obnoxious color, odor, or sludge.		Locate the source of the pollution and remove contaminants or pollutants present. *Report and coordinate source control, removal, and/or cleanup with City of Tumwater Spill Reporting Hotline 360-754-4150, Moderate Risk Waste Program at Thurston County Environmental Health 360-754–4111, and/or Dept. of Ecology Spill Response 800-424-8802.*	

Catch Basins					
Drainage System Feature	**Problem or Defect**	**Conditions to Check For**	**Maintenance Required (Y/N)**	**What To Do for Desired Condition**	**Date Maintenance Completed**
Catch Basin Cover	Cover Not in Place	Cover is missing or only partially in place. Any open catch basin requires maintenance.		Ensure catch basin cover is in place and secured.	
	Locking Mechanism Not Working	Mechanism cannot be opened by one maintenance person with proper tools. Bolts into frame have less than 0.5 inch of thread.		Repair/replace locking mechanism as needed.	
	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.)		Use blunt force with a hammer or similar tool to loosen lid.	
Ladder	Ladder Rungs Unsafe	Maintenance person judges that ladder is unsafe due to missing rungs, misalignment, rust, or cracks. Ladder must be fixed or secured immediately.		Repair or replace ladder to specifications. Ensure it is safe to use as determined by inspection personnel.	
Metal Grates	Grate Opening Unsafe	Grate with opening wider than 0.875 (7/8) inch.		Ensure grate opening meets design standards. Repair or replace grate as needed.	
	Trash and Debris	Trash and debris that is blocking more than 20 percent of grate surface inlet capacity.		Remove and properly dispose of all trash and debris.	
	Damaged or Missing	Grate missing or broken member(s) of the grate.		Repair or replace grate as needed. Ensure grate is in place and meets design standards.	

2e. Baffle Oil/Water Separators (API type)

An underground vault or tank designed to separate oil from runoff water via baffles. An oil/water separator vault is a confined space. Visual inspections should be performed aboveground. If entry is required, it should be performed by qualified personnel.

Baffle Oil/Water Separators (API type)					
Drainage System Feature	**Problem or Defect**	**Conditions to Check For**	**Maintenance Required (Y/N)**	**What To Do for Desired Condition**	**Date Maintenance Completed**
General	Dirty Discharge Water	Inspect discharge water for obvious signs of poor water quality.		Clean oil water separator by washing baffles with low pressure water and vactoring while washing.	
	Sediment Accumulation	Sediment depth in bottom of vault exceeds 6 inches in depth.		Remove sediment deposits that would impede flow through the vault and reduce separation efficiency. Refer to "Volume IV Appendix IV-C: Recommendations for Management of Street Wastes" for proper disposal of sediment from street runoff.	
	Trash and Debris Accumulation	Trash and debris accumulation in vault, or pipe inlet/outlet, floatables and non-floatables.		Remove and properly dispose of all trash and debris from vault and inlet/outlet piping.	
	Oil Accumulation	Oil accumulations at the surface of the water or 6 inches of sludge in the sump.		Extract oil from vault by vactoring. Disposal must be in accordance with state and local rules and regulations. Refer to "Volume IV Appendix IV-C: Recommendations for Management of Street Wastes" for proper disposal of sediment from street runoff.	
Structure	Damaged Pipes	Inlet or outlet piping damaged or broken and in need of repair.		Repair/replace pipe as needed.	
	Access Cover Damaged/ Not Working	Cover cannot be opened, corrosion/deformation of cover.		Repair/replace cover to proper working specifications.	
	Vault Structure Damage – Cracks in	Maintenance person determines structure is unsound.		Repair/replace vault components so that vault meets design specifications and is structurally sound.	

Baffle Oil/Water Separators (API type)					
Drainage System Feature	**Problem or Defect**	**Conditions to Check For**	**Maintenance Required (Y/N)**	**What To Do for Desired Condition**	**Date Maintenance Completed**
Structure	Walls or Bottom, Damage to Frame and/or Top Slab	Grout fillet has separated or cracked wider than 0.5 inch at the joint of any inlet/outlet pipe, or any evidence of soil entering basin.		Repair top slab using patch or grout material.	
	Baffles	Baffles corroding, cracking, warping and/or show signs of failure as determined by maintenance/inspection person.		Repair/replace baffles to manufacturer's specifications.	
	Access Ladder Damaged	Ladder is corroded or deteriorated, not securely attached to structure wall, missing rungs, cracks, or misaligned.		Repair/replace ladder to meet specifications, and ensure it is safe to use as determined by inspection.	

2f. Coalescing Plate Oil/Water Separators

An underground vault or tank designed to separate oil from runoff water via gravity.

Coalescing Plate Oil/Water Separators					
Drainage System Feature	**Problem or Defect**	**Conditions to Check For**	**Maintenance Required (Y/N)**	**What To Do for Desired Condition**	**Date Maintenance Completed**
General	Dirty Discharge Water	Inspect discharge water for obvious signs of poor water quality.		Clean oil water separator by washing plates with low pressure water and vactoring while washing.	
	Sediment Accumulation	Sediment depth in bottom of vault exceeds 6 inches in depth and/or visible signs of sediment on plates.		Remove sediment deposits on vault bottom and plate media that would impede flow through the vault and reduce separation efficiency. Refer to "Volume IV Appendix IV-C: Recommendations for Management of Street Wastes" for proper disposal of sediment from street runoff.	
	Trash and Debris	Trash and debris accumulated in vault, or pipe inlet/outlet, floatables and non-floatables.		Remove and properly dispose of all trash and debris from vault and inlet/outlet piping.	
	Oil Accumulation	Oil accumulation at the water surface.		Oil is extracted from vault using vactoring methods. Dispose of in accordance with state and local rules and regulations. Coalescing plates are cleaned by thoroughly rinsing and flushing. Direct wash-down effluent to the sanitary sewer system where permitted. There should be no visible oil depth on water. Refer to "Volume IV Appendix IV-C: Recommendations for Management of Street Wastes" for proper disposal of sediment from street runoff.	
Structure	Damaged Coalescing Plates	Plate media broken, deformed, cracked and/or showing signs of failure.		A portion of the media pack or the entire plate pack is replaced depending on severity of failure.	

Coalescing Plate Oil/Water Separators					
Drainage System Feature	**Problem or Defect**	**Conditions to Check For**	**Maintenance Required (Y/N)**	**What To Do for Desired Condition**	**Date Maintenance Completed**
Structure	Damaged Pipes	Inlet or outlet piping damaged or broken or in need of repair.		Repair/replace pipe.	
	Baffles	Baffles corroding, cracking, warping and/or showing signs of failure as determined by maintenance/inspection person.		Repair/replace to specifications.	
	Vault Structure Damage – Includes Cracks. Damage to Frame and/or Top Slab	Cracks wider than 0.5 inch or evidence of soil particles entering the structure through the cracks, or maintenance/inspection personnel determine that the vault is not structurally sound.		Repair/replace vault components so that vault meets design specifications and is structurally sound.	
	Vault Structure Damage – Includes Cracks. Damage to Frame and/or Top Slab	Cracks wider than 0.5 inch at the joint of any inlet/outlet pipe or soil particles entering through the cracks.		Repair top slab using patch or grout material. Re-set frame if needed.	
	Access Ladder Damaged	Ladder is corroded or deteriorated, not functioning properly, not securely attached to structure wall, missing rungs, cracks, and misaligned.		Replace or repair ladder so it meets specifications and ensure it is safe to use as determined by inspection.	

2g. Catch Basin Inserts

A structure within a catch basin, with a filter containing a pollutant-removal medium. Generally considered as an alternative to oil-water separators, these are not commonly used for permanent installations, as they tend to be maintenance-intensive.

Catch Basin Inserts					
Drainage System Feature	**Problem or Defect**	**Conditions to Check For**	**Maintenance Required (Y/N)**	**What To Do for Desired Condition**	**Date Maintenance Completed**
General	Sediment Accumulation	When sediment forms a cap over the insert media of the insert and/or unit.		Remove and properly dispose of sediment. Refer to "Volume IV Appendix IV-C: Recommendations for Management of Street Wastes" for proper disposal of sediment from street runoff.	
	Trash and Debris Accumulation	Trash and debris accumulates on insert unit creating a blockage/restriction.		Remove and properly dispose of all trash and debris.	
	Media Insert Not Removing Oil	Effluent water from media insert has a visible sheen.		Remove and replace media insert as needed so no sheen is visible.	
	Media Insert Water Saturated	Catch basin insert is saturated with water and no longer has the capacity to absorb.		Remove and replace media insert.	
	Media Insert-Oil Saturated	Media oil saturated due to petroleum spill that drains into catch basin.		Remove and replace media insert.	
	Media Insert Use Beyond Normal Product Life	Media has been used beyond the typical average life of media insert product.		Remove and replace media at regular intervals, depending on insert product.	

Group 3 – Miscellaneous Facilities and Features

3a. Conveyance Pipes, Culverts, Ditches, and Swales

These features contain and direct the flow of water from one location to another.

Conveyance Pipes, Culverts, Ditches, and Swales					
Drainage System Feature	**Problem or Defect**	**Conditions to Check For**	**Maintenance Required (Y/N)**	**What To Do for Desired Condition**	**Date Maintenance Completed**
Pipes	Sediment, Debris, and Vegetation	Accumulated sediment should not exceed 20 percent of the diameter of the pipe. Vegetation should not reduce free movement of water through pipes. Ensure that the protective coating is not damaged or rusted. Dents should not significantly impede flow. Pipe should not have major cracks or flaws allowing water to leak out.		Clean out pipes of all sediment and debris. Remove all vegetation so that water flows freely through pipes. Repair or replace pipe as needed.	
Open Ditches	Trash and Debris	There should not be any yard waste or litter in the ditch.		Remove and properly dispose of all trash and debris.	
	Sediment Buildup	Accumulated sediment should not exceed 20 percent of the depth of the ditch.		Clean out ditch of all sediment and debris. Refer to "Volume IV Appendix IV-C: Recommendations for Management of Street Wastes" for proper disposal of sediment from street runoff.	
Open Ditches and Swales	Overgrowth of Vegetation	Check for vegetation (e.g., weedy shrubs or saplings) that reduces the free movement of water through ditches or swales.		Clear blocking vegetation so that water moves freely through the ditches. Grassy vegetation should be maintained so it remains less than 12 inches high.	
	Erosion	Check around inlets and outlets for signs of erosion. Check slopes for signs of sloughing or settling. Action is needed where eroded damage is over 2 inches deep and where there is potential for continued erosion.		Eliminate causes of erosion. Stabilize slopes by using the appropriate erosion control procedure (e.g., compact the soil, plant grass, reinforce with rock).	

Conveyance Pipes, Culverts, Ditches, and Swales					
Drainage System Feature	**Problem or Defect**	**Conditions to Check For**	**Maintenance Required (Y/N)**	**What To Do for Desired Condition**	**Date Maintenance Completed**
Open Ditches and Swales	Missing Rocks	Native soil beneath the rock splash pad, check dam, or lining should not be visible.		Replace rocks to design standard.	
Swales	Vegetation	Grass cover is sparse and weedy, or areas are overgrown with woody vegetation.		Aerate soils and re-seed and mulch bare areas. Keep grass less than 12 inches high. Remove woody growth, re-contour and re-seed as necessary.	
	Homeowner Conversion	Swale has been filled in or blocked by shed, woodpile, shrubbery, etc.		Speak with the homeowner and request that the swale area be restored. Contact the city to report the problem if not rectified voluntarily.	
	Swale Does Not Drain	Water stands in the swale, or flow velocity is very slow. Stagnation occurs.		A survey may be needed to check grades. Grades should be in 1 to 5 percent range if possible. If grade is less than 1 percent, underdrains may need to be installed.	

3b. Access Roads and Easements

These features provide access to drainage facilities for inspection and/or maintenance.

Access Roads and Easements					
Drainage System Feature	**Problem or Defect**	**Conditions to Check For**	**Maintenance Required (Y/N)**	**What To Do for Desired Condition**	**Date Maintenance Completed**
General	Access	Ensure access is maintained to a standard that limits track out.		Re-gravel or install quarry spalls if needed.	
Access Road	Blocked Roadway	Debris that could damage vehicle tires (glass or metal).		Clear all potentially damaging material.	
	Blocked Roadway	Any obstructions that reduce clearance above and along the road to less than the required width (minimum of 15 feet).		Clear above and along roadway so there is enough clearance.	
Road Surface	Bad Road Conditions	Check for potholes, ruts, mushy spots, or woody debris that limits access by maintenance vehicles.		Add gravel or remove wood as necessary.	
Shoulders and Ditches	Erosion	Check for erosion along roadway.		Repair erosion with additional soil or gravel.	