



SURFACE WATER MANAGEMENT REPORT

Veterans Community Park Redevelopment

Collier County, Florida

Prepared for:

City of Marco Island



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Veterans Community Park Redevelopment

Collier County, Florida

Prepared for:

CITY OF MARCO ISLAND
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Marco Island, FL 34145

Prepared by:

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Project Number 048353024
November 2020

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1. PURPOSE AND INTENT

The purpose of this application is to obtain a South Florida Water Management District Individual Environmental Resource Permit (ERP) for the construction and operation of a new stormwater management system to serve the Veterans Community Park redevelopment “Project” in Marco Island Florida. All elevations in this report reference NAVD88.

2. EXISTING CONDITIONS

2.1 General Site Description. The 10.71 acre project area includes a 7.36 acre parcel owned by the City of Marco Island and 3.35 acres of public Right-of-Way. The Project is located in Collier County, Florida, Section 8, Township 52, Range 26. The existing land uses include a park, parking lot, and public roadway. The existing utilities onsite include potable water, sanitary, electrical, and stormwater infrastructure. A location map and aerial are included in the Project’s civil plan set submitted with this application. See Table 1 below for the pre-development land uses.

Table 1: Pre-development Land Uses

Land Use	Area (ac)
Building	0.00
Pavement	3.44
Playground	0.00
Pervious Area	7.27
Total	10.71

2.2 Flood Zone. Per the Federal Emergency Management Agency (FEMA) Panel 12021C0828H, the Project lies in Flood Hazard Zone AE with Base Flood Elevation of 8 ft. Refer to Appendix A for the FEMA Flood Map.

2.3 Existing Soils. Per the NRCS Soil Resource Report, the site contains a single soil classification type: St. Augustine, organic substratum-Urban land complex, with a hydrologic soil classification of A. A soils report is included in Appendix A and a soils map is included in

the civil plan set which are part of this permit application. Additionally, geotechnical field investigations were performed in April of 2020. A geotechnical report is included with this report in Appendix A. The report provides results from percolation tests and soil borings. The report identified the seasonal high groundwater elevation as 1 to 3 feet below the existing ground surface. Elevation on site range from 3.0 to 8.0 NAVD88. Based on report findings, the seasonal high groundwater on site ranges from 1 ft NAVD88 to 5 ft NAVD88.

2.4 Existing Drainage Patterns. Presently, all stormwater runoff from land within the Project limits drains generally to the edges of the property and into existing stormwater inlets within existing and formerly vacated public right of way in the Project limits. These inlets discharge to the tidal saltwater canal system directly adjacent to southwest boundary of the Project. This canal system is hydraulically connected via open water to the Gulf of Mexico with a Mean High-Water elevation of 0.43 NAVD88 per the NOAA Tidal Station 8724991, located 1.7 miles from the project site. A copy of the tide elevation from this NOAA Station is included in Appendix A. This canal system is within the limits of the Marco Island Estuary, Water Body ID (WBID) 32780, according to the Florida Department of Environmental Protection's (FDEP) Comprehensive List of Impaired Water Bodies. As of the date of the report, Water Body 32780 is impaired for Nutrients -Total Nitrogen.

2.5 Existing District Permits. The South Florida Water Management District's (District) online permitting data base was searched and no existing Environmental Resource Permit (ERP) was found within the Project limits.

3. PROPOSED CONDITIONS

3.1 General Project Description. The proposed Project includes the redevelopment of the existing Veterans Community Park in Marco Island Florida. The Project includes construction of street side parking, sidewalks, a bathroom building, picnic and game area, playground, a bandshell, modification to an existing asphalt parking lot, and supporting utility and stormwater infrastructure. The Project includes removal of some impervious surfaces and addition of new impervious area. There will be a net increase of 0.91 acres of impervious area. See Table 2

below for a breakdown of the proposed post-development land uses. Please note that the playground was considered impervious area due to the impervious underlayer used for design.

Table 2: Post-development Land Uses

Land Use	Area (ac)
Building	0.16
Pavement	4.34
Playground	0.10
Pervious Area	6.11
Total	10.71

3.2 Utilities. Potable water, re-use irrigation, and sanitary utility service will be provided by the City of Marco Island. A copy of the Letter of Availability from the City is included in Appendix E.

3.3 Dewatering. There are no dewatering activities anticipated for the construction of this project.

4. WATER QUALITY TREATMENT

4.1 Required treatment volume. The net increase in impervious area for the project is 0.91 acres, which includes 6,967 sf (0.16 acres) of new building. The required treatment volume is calculated based upon 2.5 inches over the area of additional impervious area on-site, less building area. Refer to Table 3 below. An additional 50% of this required water quality volume was added since the project discharges to an impaired water body.

Table 3: Design Parameters

Design Parameters:

Pre-Impervious Area (ac)	3.53
Post- Impervious Area (ac)	4.44
Net Increase Imp. Area (ac)	0.91
Net Imp. Area Less Bldg. (ac)	0.75
Control Elv. (ft) NAVD88	1.00

4.2 Treatment volume provided. The proposed stormwater management system utilizes exfiltration pipes as dry detention to provide the required minimum treatment volume of 0.18 acre-feet. Detailed calculations are provided in Appendix B. See Table 4 below for a summary of the treatment volume.

Table 4: Water Quality Volume Provided

WQ Volume Required (acre-ft)	0.18
Volume/LF of Inf. Pipe (cf) (18")	6.9
Volume/LF of Inf. Pipe (cf) (24")	9.1
Exfiltration Pipe Length (LF) (18")	3,385
Exfiltration Pipe Length (LF) (24")	1,114
WQ Volume Provided in Pipe (ac-ft)	0.77

4.3 Nutrient Analysis A nutrient analysis for the project site was performed using BMPTrains Version 2.0.1. Nutrient loading and treatment options were calculated and show a net improvement between existing and proposed conditions for the site. A detailed input and summary report has been included in Appendix B.

4.4 Bleed-down calculations. The bleeder size is required to meet the District's bleed down requirements of 0.5 inches in 24 hours was less than the minimum orifice size provided in Section 5.2 of the SFWMD ERP Applicant's Handbook Volume II, which states that devices shall incorporate dimensions no smaller than 6 square inches of cross sectional area, two inches minimum dimension, and 20 degrees for "V" notches. The Applicant's handbook also requires a "V" or circular shaped gravity control bleed down device where

possible to increase detention time during minor events. Therefore, a 3-inch circular orifice is proposed for this Project. Because orifice dimensions meet the minimum criteria provided in App Handbook Vol II, Section 4.2.1, the system is presumed to meet bleed down criteria.

5. STORMWATER ATTENUATION

The off-site discharge rate is limited to rates not causing adverse impacts to existing off-site properties. The tailwater for the site and the proposed stormwater system is the tidally controlled canal basin as described in this report. Since this canal system is hydraulically connected to the Gulf of Mexico via open water, changes to the volume of discharge from the subject site has essentially no impact on the tailwater elevation or to off-site properties. For this reason, no attenuation of the stormwater run-off from the subject site is required.

6. INTERNAL STORM SEWER ANALYSIS

The proposed onsite stormwater management system for this project was analyzed using StormCAD software to appropriately size pipes and inlets to ensure the system could adequately collect contributing runoff without creating adverse flooding to the site. This simulation was created by modeling each individual inlet or junction as a node with pipe interconnects. Catchment areas for each inlet were created based upon the proposed site grading plan. The StormCAD model simulates peak instantaneous flow through the system using the rational method. The runoff coefficients used for pervious open space and impervious pavement or buildings are provided in Table 6 below.

Table 5: Rational Method Run-off Coefficient Used.

Land Cover	Run-off Coeff.
Open Space	0.20
Impervious Pvmnt	0.95

The tailwater at the three control structures was set based upon the receiving tidal water body peak flow over the weirs within the structures using the following equation:

$$Q \text{ (cfs)} = 3.33bh^{\frac{3}{2}}; \text{ where } b = \text{width of weir, and } h = \text{height of weir}$$

Storm pipes and inlets were sized to accommodate the 5-year, 1-day event without the peak stage encroaching into parking lots or roadways. The StormCAD model inputs and results are attached in Appendix D.

7. CONCLUSION

In conclusion, the maximum stages are contained within the site and the finished floor elevations are above the 100-year, 3-day maximum stage. Additionally, the bandshell finished floor has been placed about the FEMA flood elevation of 8.0 at an elevation of 9.0. The proposed bathroom building finished floor has been set at an elevation of 6.0, but has been designed with features to support flooding in the 100-year, zero-discharge storm event. See results summary in **Table 7** below.

Table 6: Final Results Summary

Veterans' Community Park	
Water Quality	
Control Elevation (ft)	1.00
Required Water Quality Volume (ac-ft)	0.18
Provided Water Quality Volume (ac-ft)	0.77
Water Quality Depth (ft)	2.50
Water Quality Elevation (ft NAVD 88)	3.50

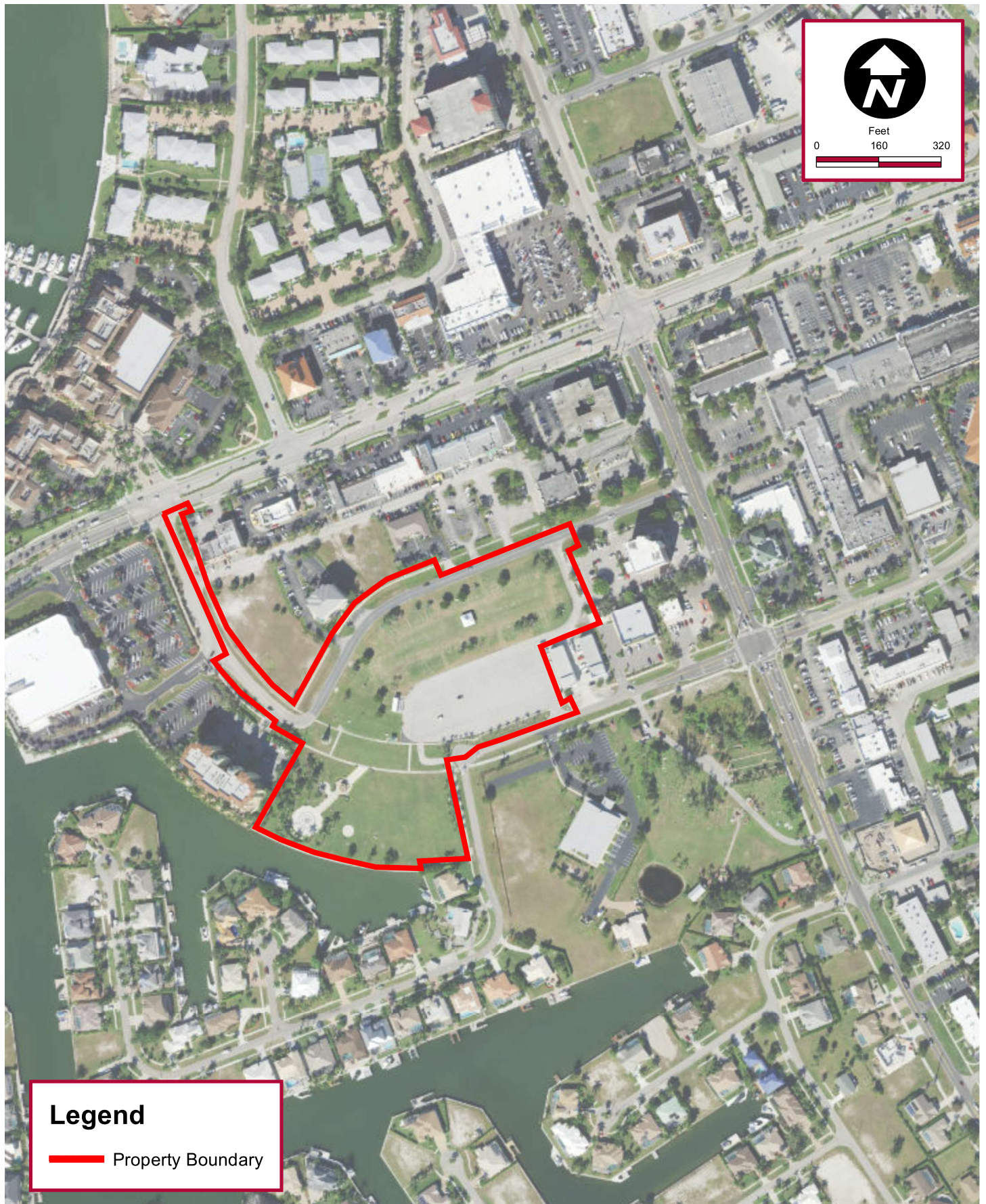
Design Elevations	
5-Year 1-Day Storm Event - 6.1 inches	
Peak Stage (ft NAVD)	4.30
Min. Parking Lot (ft NAVD)	4.30
25-Year 3-Day Storm Event - 11.7 inches	
Peak Stage (ft NAVD)	4.69
Min. Berm Elevation (ft NAVD)	4.69
100-Year 3-Day Storm Event - 15.8 inches	
Peak Stage w/ discharge (ft NAVD)	4.86
Peak Stage - zero discharge (ft NAVD)	6.19
FEMA Flood Zone	X
FEMA Flood Elevation (ft NAVD)	8.00
Minimum Building F.F.E (ft NAVD)	9.00

APPENDICES

APPENDIX A: PROJECT INFORMATION

LOCATION MAP

\\sarp01\l_sar\ISAR_URG\048353024 - Veterans Park Marco Island\GIS\Maps\Veterans Parc Location_Map.mxd - 4/10/2020 11:18:10 AM - daniel.williams



Legend

— Property Boundary

Kimley»Horn

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LOCATION MAP

VETERANS PARK MARCO ISLAND COLLIER COUNTY, FLORIDA

Scale: As Noted

Project No.: 048353024

April 2020

Exhibit

FEMA MAP

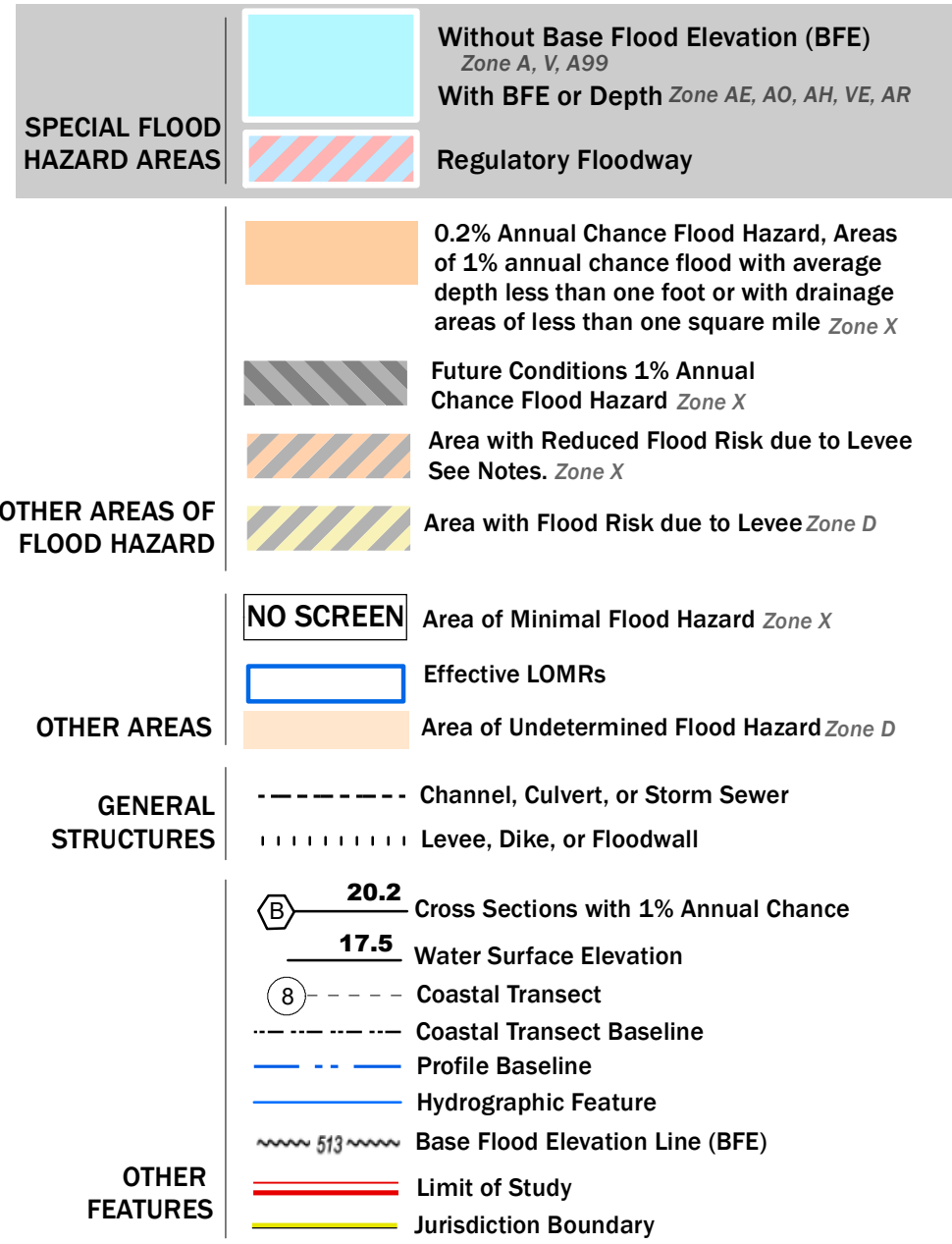


USGS The National Map: Orthoimagery. Data refreshed April, 2019.

25°56'8.36"N

FLOOD HAZARD INFORMATION

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



NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map data for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at <http://msc.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study Report for this jurisdiction.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

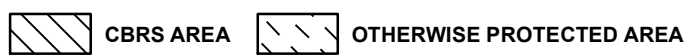
Basemap information shown on this FIRM was provided in digital format by USDA, Farm Service Agency (FSA). This information was derived from NAIP, dated April 11, 2018.

This map was exported from FEMA's National Flood Hazard Layer (NFHL) on **4/14/2020 12:30:39 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time. For additional information, please see the Flood Hazard Mapping Updates Overview Fact Sheet at <https://www.fema.gov/media-library/assets/documents/118418>

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below.
The basemap shown complies with FEMA's basemap accuracy standards

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date.

COASTAL BARRIER RESOURCES SYSTEM (CBRS)
This map includes approximate boundaries of the CBRS for informational purposes only. Flood insurance is not available within CBRS areas for structures that are newly built or substantially improved on or after the date(s) indicated on the map. For more information see <http://www.fws.gov/cbrs>, the FIS Report, or call the U.S. Fish and Wildlife Service Customer Service Center at 1-800-344-WILD.

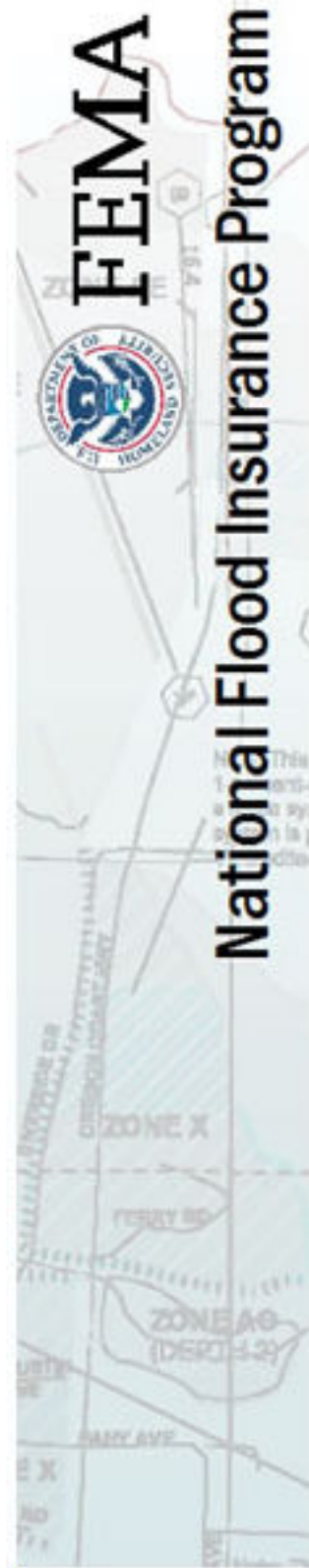
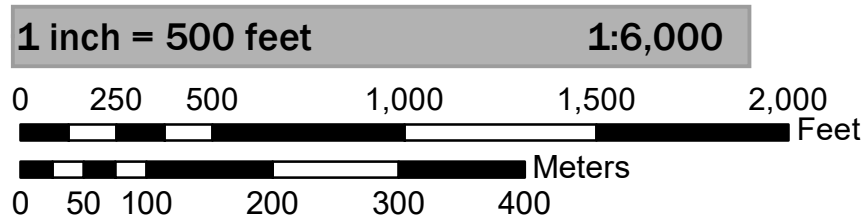


SCALE



N

N For information about the specific vertical datum for elevation features, datum conversions, or vertical monuments used to create this map please see the Flood Insurance Study (FIS) Report for your community at <https://msc.fema.gov>



NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP

**COLLIER COUNTY, FLORIDA
AND INCORPORATED AREAS**

PANEL 828 OF 1175

Panel Contains:

COMMUNITY	NUMBER	PANEL
CITY OF MARCO ISLAND FLORIDA	120426	0828

MAP NUMBER
12021C0828H
EFFECTIVE DATE
05/16/2012

SOILS MAP



United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource Report for **Collier County Area, Florida**



April 10, 2020

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

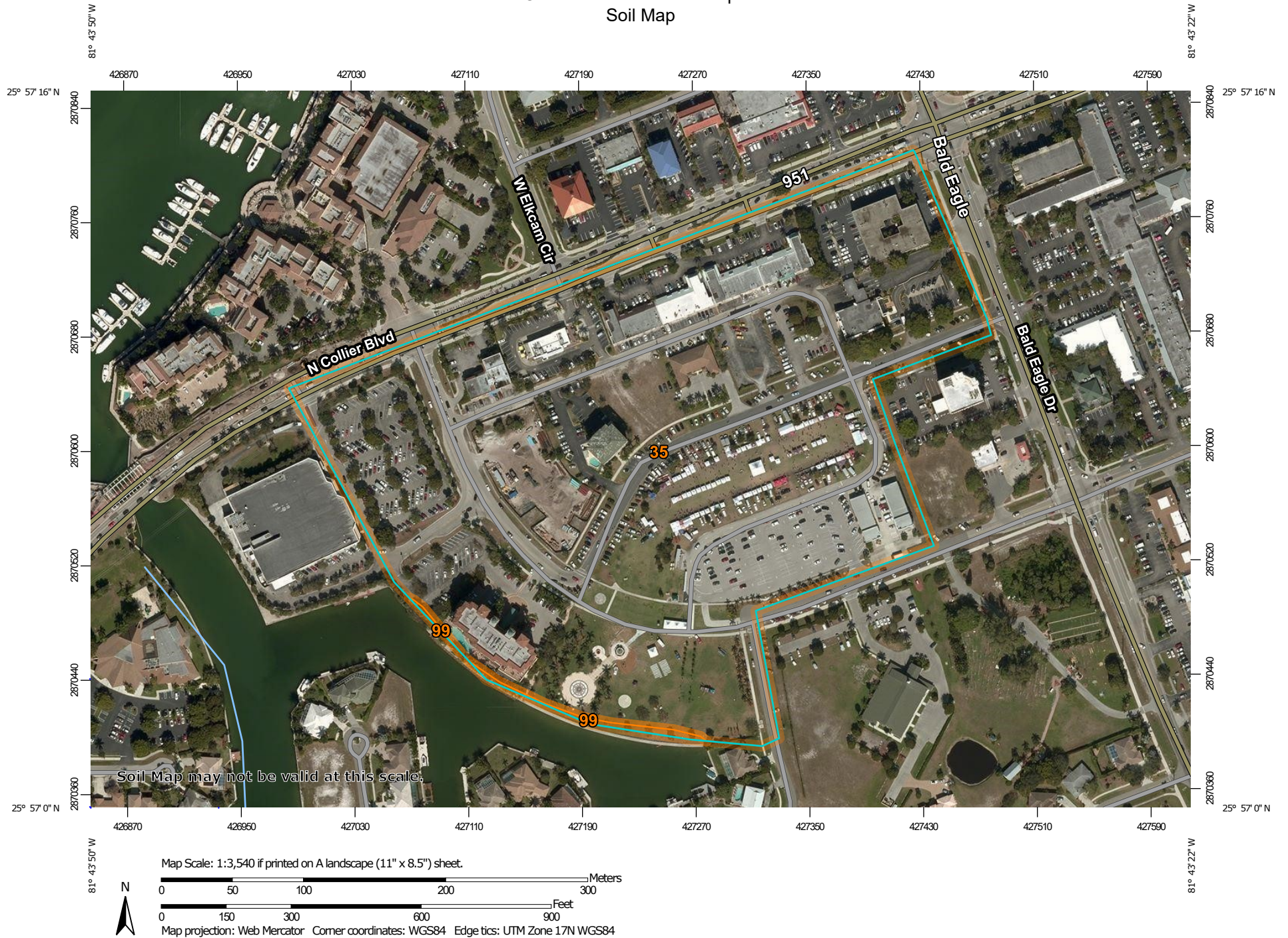
Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map



Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit

 Clay Spot

 Closed Depression

 Gravel Pit

 Gravelly Spot

 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water

 Perennial Water

 Rock Outcrop

 Saline Spot

 Sandy Spot

 Severely Eroded Spot

 Sinkhole

 Slide or Slip

 Sodic Spot

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Collier County Area, Florida
Survey Area Data: Version 13, Feb 3, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 6, 2015—Feb 12, 2015

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
35	St. Augustine, organic substratum-Urban land complex, 0 to 2 percent slopes	28.7	99.5%
99	Water	0.1	0.5%
Totals for Area of Interest		28.8	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the

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development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Collier County Area, Florida

35—St. Augustine, organic substratum-Urban land complex, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2y0jb
Elevation: 0 to 20 feet
Mean annual precipitation: 45 to 70 inches
Mean annual air temperature: 70 to 77 degrees F
Frost-free period: 360 to 365 days
Farmland classification: Not prime farmland

Map Unit Composition

St. augustine, organic substratum, and similar soils: 45 percent
Urban land: 40 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of St. Augustine, Organic Substratum

Setting

Landform: Marine terraces
Landform position (three-dimensional): Tread, dip
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy mine spoil or earthy fill over herbaceous organic material

Typical profile

^C - 0 to 51 inches: paragravelly fine sand
Oab - 51 to 80 inches: muck

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: About 18 to 42 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 4 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 4.0
Available water storage in profile: Moderate (about 7.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Forage suitability group: Forage suitability group not assigned (G155XB999FL)
Hydric soil rating: No

Description of Urban Land

Setting

Landform: Flatwoods on marine terraces
Landform position (three-dimensional): Riser, talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: No parent material

Minor Components

Matlacha

Percent of map unit: 4 percent
Landform: Flats on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Hydric soil rating: No

Holopaw

Percent of map unit: 3 percent
Landform: Flats on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Convex, linear
Across-slope shape: Linear, concave
Other vegetative classification: Slough (R155XY011FL)
Hydric soil rating: Yes

Basinger

Percent of map unit: 3 percent
Landform: Flats on marine terraces, drainageways on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Convex, concave
Across-slope shape: Linear, concave
Other vegetative classification: Slough (R155XY011FL)
Hydric soil rating: Yes

Myakka

Percent of map unit: 3 percent
Landform: Drainageways on flatwoods on marine terraces
Landform position (three-dimensional): Tread, talf, dip
Down-slope shape: Linear
Across-slope shape: Linear, concave
Other vegetative classification: South Florida Flatwoods (R155XY003FL)
Hydric soil rating: No

Kesson, tidal

Percent of map unit: 1 percent
Landform: Tidal marshes on marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Other vegetative classification: Salt Marsh (R155XY009FL)
Hydric soil rating: Yes

Canaveral

Percent of map unit: 1 percent

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Landform: Flats on marine terraces, ridges on marine terraces

Landform position (two-dimensional): Summit, backslope

Landform position (three-dimensional): Interfluvium, tread, talus

Down-slope shape: Concave, convex

Across-slope shape: Linear

Hydric soil rating: No

99—Water

Map Unit Composition

Water: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

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GEOTECHNICAL REPORT



UNIVERSAL ENGINEERING SCIENCES

GEOTECHNICAL EXPLORATION

PROPOSED VETERANS PARK IMPROVEMENTS
WEST ELKCAM CIRCLE
MARCO ISLAND, COLLIER COUNTY, FLORIDA

UES Project No. 0530.2000061.0000

PREPARED FOR:

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April 21, 2020

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April 21, 2020

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Attention: Mr. Jonathan Hart, E.I.
Jonathan.Hart@Kimley-horn.com

Reference: **Geotechnical Exploration**
Proposed Veterans Park Improvements
West Elkcam Circle
Marco Island, Collier County, Florida
UES Project No. 0530.2000061.0000

Dear Mr. Hart:

Universal Engineering Sciences (UES) has completed a geotechnical exploration on the above-referenced site in Marco Island, Florida. Our scope of services was in general accordance with UES Proposal dated March 25, 2020.

This report contains the results of our study, an engineering interpretation of the subsurface data obtained with respect to the project characteristics described to us, geotechnical design recommendations, and general construction and site preparation considerations.

UES appreciate the opportunity to have worked with you on this project and look forward to a continued association with your firm. Please contact us if you have any questions, or if UES may further assist you as your plans proceed.

Respectfully Submitted,
UNIVERSAL ENGINEERING SCIENCES
Certificate of Authorization No. 549

Ashok Neela
Staff Engineer

1 – Client (email only)



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EXECUTIVE SUMMARY

We prepared this summary to provide a quick overview of our findings. Please review, and rely on, the full report for recommendations and other considerations.

Project Description

We understand the project under consideration involves planned improvements at Veterans Park in Marco Island, Collier County, Florida. We understand the new improvements include a restroom structures, a new band shell structure, new asphalt pavements and stormwater management areas. Further we anticipate the proposed structures will be elevated to achieve designated flood zone elevation (AE-Zone).

Soil and Groundwater Conditions

The soils found consist of brown, dark gray, gray, light brown and light gray fine sand with trace roots, silt fines and varying amount of shell fragments in loose, medium dense, dense and very dense states to the maximum depth explored of 25 feet below existing grade.

Of note in the General Soil Profile was the presence of very soft and loose dark brown, dark gray muck, peat with sand and organic clay which was generally found at varying depths from around 2.5 to 7 feet below existing grade.

The groundwater was measured at depths of 4.4 to 7 feet below ground surface. Estimated seasonal high ground water levels could be around 1 to 3 feet below ground surface.

Foundation Design

Based on our exploration and analyses we recommend the band shell and restroom structures can be supported on 10" or 12", square, driven concrete piles embedded into the medium dense, dense and very dense fine sands found generally around 10 to 20 feet below existing grade at the time of our exploration.



1.0 INTRODUCTION

1.1 GENERAL

In this report we present the results of our geotechnical exploration on the site of the proposed Veterans Park Improvements located at West Elcam Circle in Marco Island, Collier County, Florida. This report contains the results of our study, an engineering interpretation of the subsurface data obtained with respect to the project characteristics described to us, and our recommendations for geotechnical design and general site preparation. Our scope of services was in general accordance with UES Proposal dated March 25, 2020.

1.2 PROJECT DESCRIPTION

We understand the project under consideration involves planned improvements at Veterans Park in Marco Island, Collier County, Florida. We understand the new improvements include a restroom structures, a new band shell structure, new asphalt pavements and stormwater management areas. Further we anticipate the proposed structures will be elevated to achieve designated flood zone elevation (AE-Zone).

We were provided with a site plan depicting the location of the proposed improvements and the proposed boring locations. We used this information to perform our exploration.

Our geotechnical recommendations are based upon the above provided information, assumptions and considerations. ***If UES is not informed of changes to final design information, the recommendations contained herein are not considered valid as we cannot be responsible for the consequences of changes of which UES were not informed.***

A general location map of the project area appears in Appendix A: Site Location Map.

2.0 PURPOSE AND METHODOLOGIES

2.1 PURPOSE

The purpose of our services was:

- To generally characterize the shallow subsurface conditions at the site using a limited amount of Standard Penetration Test (SPT) borings;
- To evaluate the soil/structure relationships using subsurface information interpreted from the borings and project information described to us or assumed by us; and
- To provide geotechnical engineering design information and recommendations for building foundations and pavements, general recommendations for building pad subgrade preparation and stormwater management areas.

This report presents an evaluation of site conditions on the basis of traditional geotechnical procedures for site characterization. The recovered samples were not examined, either visually or analytically, for chemical composition or environmental hazards.



Our study was confined to the zone of soil likely to be influenced by the proposed structural foundation systems. Our scope of services did not address the potential for surface expression of deep geological conditions, such as sinkhole development related to karst activity.

2.2 FIELD EXPLORATION

2.2.1 SPT BORINGS

The subsurface conditions at the site were explored with a total of six (6) borings. The subsurface conditions in the proposed band shell area were explored with four (4) borings completed to depths of 25 feet below ground surface (bgs). The subsurface conditions in the proposed restroom areas were explored with two (2) borings each completed to a depth of 15 feet below ground surface.

These borings were advanced using the rotary wash method, and samples were collected while performing the Standard Penetration Test (SPT) at regular intervals.

We performed the SPT test in general accordance with ASTM D-1586 guidelines. However, at depths of 10 feet or less we sampled continuously in order to note variations in the upper soil profile. In general, the SPT test consists of a standard split-barrel sampler (split-spoon) driven into the soil using a 140-pound hammer free-falling 30 inches. The number of hammer blows required to drive the sampler 12 inches, after first seating it 6 inches, is designated the penetration resistance, or SPT-N value. This value is used as an index to soil strength and consistency.

2.2.2 USUAL OPEN HOLE TESTS

Additionally, to provide data concerning the exfiltration rate of the near surface soils, we conducted four (4) S.F.W.M.D. Usual Open Hole Exfiltration Tests in the event lawn areas. In general, the test is conducted by inserting a 6 inch diameter perforated PVC pipe into an augured bore hole. Water is introduced into the casing and the flow rate required to maintain a constant head at the top of the pipe is measured after steady state conditions have been achieved. The flow rate in gallons per minute is utilized to determine the hydraulic conductivity. The detailed test results are included in Appendix C.

2.2.3 PAVEMENT CORES

The existing pavement thickness and composition were determined by extracting cores at four (4) locations in the existing parking area and Park Avenue using a 6-inch I.D. diamond impregnated core barrel. The asphaltic concrete, base and stabilized subgrade were visually classified and the thicknesses of the various components were measured. The presence and thickness of the stabilized subgrade was based on the soil underlying the aggregate base containing sufficient quantity of shell to achieve a Limerock Bearing Ratio of 40 (typically required for a stabilized subgrade material). The determination was based on a visual estimate. Verification of the Limerock Bearing Ratio of the subgrade soils was beyond the scope of our evaluation.

Consider the indicated locations, elevations and depths to be approximate. Our drilling crew located the borings based upon estimated distances and taped measurements from existing site features. If more precise location and elevation data are desired, a registered professional land



surveyor should be retained to locate the borings and determine their ground surface elevations. The Boring and Core Location Plan is presented in Appendix B.

Soil, rock, water, and/or other samples obtained from the project site are the property of the client. Unless other arrangements are agreed upon in writing, UES will store such samples for no more than 60 calendar days from the date UES issued the first document that includes the data obtained from these samples. After that date, UES will dispose of all samples.

2.3 LABORATORY TESTING

The soil samples recovered from the test borings were returned to our laboratory and visually classified by our technical staff. No laboratory tests were deemed necessary.

3.0 FINDINGS

3.1 SURFACE CONDITIONS

The site is comprised of existing Veterans Park with sparse grass ground cover, isolated trees, asphalt parking areas and veterans plaza. Park Drive and a waterway borders the site to the North and South respectively. UES did not note any debris or standing water on site at the time of our field exploration. At the start of our geotechnical exploration, we reviewed aerial photographs available from the Collier County Property Appraiser's office and USGS topographic quadrangle maps. According to USGS topographic information, the elevation across the property is approximately on the order of +5 to +9 feet NGVD.

3.2 SUBSURFACE CONDITIONS

3.2.1 SOIL SURVEY

We also reviewed USDA Natural Resources Conservation Service (NRCS) data for Collier County. According to SCS, there is one native, surficial soil groups underlying this site. A summary of selected properties for the identified soil group on the site are included below in Table 1.

Table 1 SUMMARY OF SOIL INFORMATION					
Soil Map Unit & Name	Hydrologic Soil Group	Indications of Shallow Rock	Water Table Type	SHWT Depth	Location
35- St. Augustine, organic substratum-Urban land complex, 0 to 2 percent slopes	A	>80 inches	Apparent	About 18 to 42 inches	Entire Site



3.2.2 SOIL BORINGS

The boring locations and detailed subsurface conditions are illustrated in Appendix B: Boring Location Plan and Boring Logs. The classifications and descriptions shown on the logs are based upon visual characterizations of the recovered soil samples. Refer to Appendix B: Soils Classification Chart, for further explanation of the symbols and placement of data on the Boring Logs. The general subsurface soil profile on the site, based on the soil boring information, is described below. For more detailed information, please refer to the boring logs.

The soils found consist of brown, dark gray, gray, light brown and light gray fine sand with trace roots, silt fines and varying amount of shell fragments in loose, medium dense, dense and very dense states to the maximum depth explored of 25 feet below existing grade.

Of note in the General Soil Profile was the presence of very soft and loose dark brown, dark gray muck, peat with sand and organic clay which was generally found at varying depths from around 2.5 to 7 feet below existing grade. We believe the organic materials are natural vegetation which has been filled over sometime in the past. These materials are not suitable for the support of foundations, the floor slab, as well as any other soil supported elements. It is not uncommon for natural and/or man-made deposits of organic materials to lie randomly in lateral extent and thickness. Our borings are about 2 inches in diameter and explore only a very limited spatial area. For example, a 50-foot grid of borings over a one acre site only exposes about one square foot of the 43,000 square feet of ground surface (0.002%). For perspective, this is roughly comparable to the ratio of the size of this dot ■ to the entire sheet of paper. It should be obvious that the exploration already performed is inadequate to estimate the extent of organic materials across the site. Therefore, if you wish to estimate the quantity of unsuitable organic materials at this site, additional exploration must be performed. UES would be pleased to develop a scope of exploration to assist you and we envision a combination of mechanical or hand borings, probes and test pits for this purpose.

The shallow water table was encountered at depths of 4.4 to 7 feet below existing grade at the boring locations during geotechnical exploration. These readings are unstabilized and are subject to fluctuation.

The boring logs and related information included in this report are indicators of subsurface conditions only at the specific locations and times noted. Our field exploration did not find unsuitable or unexpected materials at the time of occurrence. However, borings for a typical geotechnical report are widely spaced and generally not sufficient for reliably detecting the presence of isolated, anomalous surface or subsurface conditions, or reliably estimating unsuitable or suitable material quantities. Accordingly, UES does not recommend relying on our boring information to negate presence of anomalous materials or for estimation of material quantities unless our contracted services **specifically** include sufficient exploration for such purpose(s) and within the report we so state that the level of exploration provided should be sufficient to detect such anomalous conditions or estimate such quantities. Therefore, UES will not be responsible for any extrapolation or use of our data by others beyond the purpose(s) for which it is applicable or intended.



3.2.2 SOIL BORINGS

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3.3 PAVEMENT CORES

An approximately 1- inch thick layer of asphalt underlain by 6-inches of portland cement concrete were encountered in the two cores obtained from the existing parking lot. A fine sand with some rocks that appeared could meet the LBR requirement of 40 percent for a stabilized subgrade was encountered below the concrete layer.

Approximately 2.2 inches of asphalt was present in the cores extracted from the roadway. An aggregate base layer was encountered below the asphalt surface. The base layer ranged in thickness from 7.5 to 11 inches. A fine sand with trace rock was found below the base layer. However, the amount of rock within the overall sand matrix may or may not be sufficient to achieve an LBR of 40. As such we could not visually classify this layer as a stabilized subgrade.

Again, our assessment of the presence, thickness and ability to meet LBR value of 40 percent was based solely on visual observation of the material and our past experience.

A summary of the Core Results are presented in Appendix C.

4.0 RECOMMENDATIONS

4.1 GENERAL

In this section of the report we present our geotechnical design recommendations, general site preparation recommendations and information pertaining to the construction related services UES can provide. Our recommendations are made based upon a review of the attached soil test data, our understanding of the proposed construction as it was described to us, and our stated assumptions. ***If UES is not informed of changes to the provided final design information, the recommendations contained herein are not considered valid as we cannot be responsible for performance issues that may arise from design changes of which we are unaware.*** Additionally, if subsurface conditions are encountered during construction that was not found in the test borings, report those conditions immediately to us for observation and recommendations.

4.2 GROUNDWATER

Based upon our visual review of the recovered soil samples, review of information obtained from SWFWMD and the USDA Soil Survey of Collier County, and our general knowledge of local and regional hydrogeology, our estimated seasonal high groundwater level could be around 1 to 3 feet below existing grade at the test boring locations, on average.

Several factors influence the determination of the seasonal high water table (SHWT). Over time natural, undisturbed soils are subjected to alternating cycles of saturation and drying, resulting in discoloration or staining that is not part of the dominant soil color occurs. This is called mottling, and manifests itself in various shades of gray, brown, red or yellow. There are numerous processes that lead to this discoloration, including mineral accretions, oxidation, and bacteria growth within the soil. The presence of this discoloration indicates that groundwater has repetitively reached that elevation and remained there long enough to cause any or all of these processes to occur. The SHWT elevation is assumed to be the highest level at which mottling is observed in the natural soil profile, regardless of whether water is present at the time



of observation. This estimate is independent of the actual location of the groundwater table. Because the mottling process takes time and repetitive episodes, man-made soil fills do not exhibit such mottling and seasonal high estimates cannot be made in this manner.

It should be noted that the estimated SHWT does not provide any assurance that groundwater levels will not exceed this level in the future. Should impediments to surface water drainage exist on the site, or should rainfall intensity and duration exceed the normally anticipated amounts, groundwater levels may exceed our seasonal high estimate. Also, future development around the site could alter surface runoff and drainage characteristics, and cause our seasonal high estimate to be exceeded. We therefore recommend positive drainage be established and maintained on the site during construction. Further, we recommend permanent measures be constructed to maintain positive drainage from the site throughout the life of the project. Finally, we recommend all foundation and pavement grades account for the seasonal high groundwater conditions.

4.3 BAND SHELL AND RESTROOM FOUNDATIONS

4.3.1 GENERAL

We believe excessive settlement could occur as a result of the organic material strata underlying the site, if the proposed band shell and restrooms or other structural elements are soil supported. As such, we recommend the new structures be supported on deeper foundations systems such as driven piles.

4.3.2 PILE FOUNDATIONS

The proposed band shell and restroom structures may be supported on 10" or 12", square, driven concrete piles embedded into the medium dense, dense and very dense fine sands found generally around 10 to 20 feet below existing grade at the time of our exploration. Our recommendations for pile embedment depths are based solely on soil related considerations and have not taken into account any storm surge or erosion considerations.

Pile computations were made by using a static analysis method to estimate ultimate capacity of 10- and 12-inch square, pre-stressed concrete piles bearing at various depths below existing grade. Based on these analyses, a recommended embedment depth and allowable loads per pile were developed and are presented in Table 2 and 3. These compressive allowable values include a factor of safety of 3 against computed ultimate values.



TABLE 2
Pile Foundation Recommendations – Band Shell Structure

PILE TYPE AND SIZE	EMBEDMENT DEPTH*	ALLOWABLE COMPRESSIVE LOAD CAPACITY (Tons)
10" Square Pre-stressed concrete	10 feet	10
	15 feet	16
	20 feet	28
12" Square Pre-stressed concrete	10 feet	15
	15 feet	25
	20 feet	40

*Depth below existing grade at the time of the exploration. The total pile length would have to be increased as necessary to accommodate the height of any additional fill placed in the building area.

TABLE 3
Pile Foundation Recommendations – Restroom Structure

PILE TYPE AND SIZE	EMBEDMENT DEPTH*	ALLOWABLE COMPRESSIVE LOAD CAPACITY (Tons)
10" Square Pre-stressed concrete	10 feet	12
12" Square Pre-stressed concrete	10 feet	18

*Depth below existing grade at the time of the exploration. The total pile length would have to be increased as necessary to accommodate the height of any additional fill placed in the building area.

The size of the proposed pile foundations can be selected from Tables 2 and 3 based on the required load capacity of the individual piles, materials availability and economic considerations.

The development of skin friction was utilized in our analysis for driven piles. For this reason, we recommend that any pre-drilling be limited to that required to set or align the pile (maximum 2 to 3 feet).



4.4 PAVEMENT SECTIONS

4.4.1 GENERAL

We recommend using a flexible pavement section on this project. Flexible pavements combine the strength and durability of several layer components to produce an appropriate and cost-effective combination of available materials.

4.4.2 LAYER COMPONENTS

For preliminary pavement designs, we recommend using a three-layer pavement section consisting of stabilized subgrade, base course, and asphaltic concrete surface course placed on top of a compacted embankment.

We recommend that light duty pavement sections have a minimum of 6 inches of stabilized subgrade, 6 inches of base course, and a minimum of 1.5 inch of surface course, and that heavy duty pavement sections have 12 inches of stabilized subgrade, 8 inches of base course, and 2 inches of surface course.

The minimum recommended thicknesses may lead to more than normal periodic maintenance and may not meet typical life expectancies for some pavements. If projected traffic loads become available, we recommend that an appropriate pavement design be used and the component thicknesses be adjusted accordingly.

Because traffic loadings are commonly unavailable, we have generalized our pavement design into two groups. The group descriptions and the recommended component thicknesses are presented in Table 2: Pavement Component Recommendations. The structural numbers in Table 2 are based on a structural number analysis with the stated estimated daily traffic volume for a 15-year placement design life. For traffic loading conditions greater than those presented in Table 2, we recommend that you have a complete pavement design performed based on projected traffic data.

TABLE 4
FLEXIBLE PAVEMENT COMPONENT RECOMMENDATIONS

Traffic Group	Required Structural Number	Provided Structural Number	Component Thickness (inches)		
			Stabilized Subgrade	Base Course	Surface Course
Light-duty	1.9	2.1 - 2.2	6	6	1.5
Heavy-duty	2.4	2.6 - 2.8	12	8	2.0

Light-duty: auto parking areas; over eighty cars; light panel and pickup trucks; average gross weight of 4,000 pounds, total equivalent 18-kip single axle loads (ESALs) equals 30,000

Heavy-duty: commercial driveways, small roadways; twenty trucks or less per day; average gross vehicle weight of 25,000 pounds, total ESALs equals 150,000



4.4.3 STABILIZED SUBGRADE

We recommend stabilizing the subgrade materials to a minimum Limerock Bearing Ratio (LBR) of 40. The stabilized subgrade should be "free draining" when overlain by crushed concrete base. The upper 12 inches of subgrade materials and the stabilized subgrade materials should be compacted to at least 98% MPMDD.

The stabilized subgrade can be imported material or a blend of on-site soils and imported materials. If a blend is proposed, we recommend that the contractor perform a mix design to find the optimum mix proportions.

4.4.4 BASE COURSE

We recommend using either limerock* or a crushed concrete base course material. The base utilized should be obtained from an FDOT approved source, and should meet current FDOT requirements. Crushed concrete should meet FDOT requirements for graded aggregate base. Place the base in maximum 6-inch lifts and compact each lift to a minimum density of 98% MPMDD.

Perform compliance base density testing for the full lift thickness at a frequency of one test per 10,000 square feet, or at a minimum of two test locations, whichever is greater.

***Note:** If limerock base material is to be used, adequate separation between groundwater and the base must be maintained (see Section 4.4.7). Limerock is highly moisture sensitive and becomes unstable when saturated. Therefore, if the guidelines discussed in Section 4.4.7 cannot be met, the use of limerock base on this project is not recommended without installation of under drains.

4.4.5 FLEXIBLE SURFACE COURSE

In light duty areas where there is occasional truck traffic, but primarily passenger cars, we recommend using an asphaltic concrete, FDOT Superpave SP-9.5 of former FDOT Type S-3, which has a minimum stability of 1,000 pounds. In heavy duty pavement areas, we recommend FDOT SP-12.5 or former FDOT Type S-1 asphaltic concrete, which has a minimum stability of 1500 pounds.

Superpave mixes should comply with the 2010 FDOT Standard Specifications for Road and Bridge Construction. Structural asphaltic concrete mixes (S-3 or S-1) should be based on former FDOT Standard Specifications for Road and Bridge Construction, 2000 Edition. Test samples of the materials delivered to the project to verify that the aggregate gradation and asphalt content satisfies the mix design requirements. In the absence of an on-site test strip to set compaction criteria, compact the asphalt to a minimum of 95 percent of the Marshall Laboratory design density.

After placement and field compaction, core the wearing surface to evaluate material thickness and to perform laboratory densities. Obtain cores at frequencies of at least one core per 3,000 square feet of placed pavement or a minimum of two cores per day's production.



In parking areas, a potential method of extending the life expectancy of the surface course, is to apply a coal tar emulsion sealer at least six months after placement of the surface course. The seal coat may help to seal surface cracks and voids, and provide limited protection of the surface from damaging ultraviolet light and automobile liquid spillage. Please note that applying the seal coat earlier than six months after placement may hinder the "curing" of the surface course, leading to premature deterioration.

4.4.6 RIGID PAVEMENT OPTION

In heavily loaded and/or high traffic areas such as aprons and garbage corrals we recommend using a rigid pavement system for increased strength and durability and for longer life. Portland cement concrete pavement is a rigid system that distributes wheel loads to the subgrade soils over a larger area than a flexible asphalt pavement. This results in reduced localized stress to the subgrade soil. We recommend using a compacted subgrade below concrete pavement with the following stipulations:

1. Subgrade soils must be "free-draining" ($K \geq 5$ ft/day) and densified to at least 98% MPMDD to a depth of at least 1-foot directly below the bottom of the concrete slab.
2. The surface of the subgrade soils must be smooth, and any disturbances or wheel rutting corrected prior to placement of concrete.
3. The subgrade soils must be moistened prior to placement of concrete.
4. Concrete pavement thickness should be uniform throughout, with exception to the thickened edges (curb or footing).
5. The bottom of the pavement should be separated from the estimated seasonal high groundwater level by at least 12 inches.

Our recommendations for slab thickness for standard and heavy duty concrete pavements are based on (1) densification of subgrade soils to at least 98% MPMDD, (2) conservative modulus of subgrade reaction (k) equal to 100 pci, (3) a 15-year design life, and (4) total equivalent 18 kip single axle loads (ESAL) of 90,000 and 225,000, respectively. We recommend using the design shown in the following tables for concrete pavements that meet the above ESAL criteria.

<u>TABLE 5</u>		
STANDARD DUTY RIGID PAVEMENT RECOMMENDATIONS		
Minimum Pavement Thickness	Maximum Control Joint Spacing	Recommended Sawcut Depth
5 Inches	10 Feet x 10 Feet	11/4 Inches



TABLE 6		
HEAVY DUTY RIGID PAVEMENT RECOMMENDATIONS		
Minimum Pavement Thickness	Maximum Control Joint Spacing	Recommended Sawcut Depth
7 Inches	14 Feet x 14 Feet	1 1/2 Inches

For both standard duty and heavy duty rigid pavement sections, we recommend using normal weight concrete having a 28 day compressive strength (f'_c) of 4,000 psi, and a minimum 28-day flexural strength (modulus of rupture) of at least 600 psi (based on the 3 point flexural test of concrete beam samples). Layout of the sawcut control joints should form square panels, and the depth of sawcut joints should be $\frac{1}{4}$ of the concrete slab thickness.

We recommend allowing Universal Engineering Sciences to review and comment on the final concrete pavement design, including section and joint details (type of joints, joint spacing, etc.), prior to the start of construction.

For further details on concrete pavement construction, please reference the "Guide to Jointing of Non-Reinforced Concrete Pavements" published by the Florida Concrete and Products Association, Inc., and "Building Quality Concrete Parking Areas," published by the Portland Cement Association.

4.4.7 EFFECTS OF GROUNDWATER

One of the most critical influences on pavement performance in Florida is the relationship between the pavement subgrade and the seasonal high groundwater level.

It has been our experience that roadways and parking areas have been damaged as a result of deterioration of the base and the base/surface course bond due to moisture intrusion. Regardless of the type of base selected, we recommend that the seasonal high groundwater and the bottom of the base course be separated by at least 18-inches for flexible pavement and 12 inches for rigid pavement with free-draining subgrade.

At this site pavement constructed on or above finished grade should meet the minimum required separation.

4.4.8 CURBING

Typical curbing is extruded and placed atop the asphaltic concrete surface. This type of curbing does not act as a horizontal cutoff for lateral migration of storm and irrigation water into the base material and as a result this it is not uncommon for base and subgrade materials adjacent to these areas to become saturated with subsequent localized pavement deterioration. Consequently, we recommend that all pavements abutting irrigated landscape areas be equipped with an underdrain system that penetrates a minimum depth equal to the bottom of stabilized subgrade to intercept trapped shallow water and discharges it into a closed system or other acceptable discharge point. Alternatively, curbing around any landscaped sections adjacent to the parking lots and driveways could be constructed with full-depth curb sections to reduce horizontal water migration. However, underdrains may still be required dependent upon



the soil type and spatial relationships. UES should review final grading plans to evaluate the need and placement of pavement and landscape underdrains.

4.4.9 CONSTRUCTION TRAFFIC

Incomplete pavement sections may not perform satisfactorily under construction traffic loadings. We recommend that construction traffic (e.g. construction equipment, concrete trucks, sod trucks, dump trucks, etc.) be re-routed away from these roadways during construction of the infrastructure of the development. If this is not practical, then the pavement section may be completed and then protected with a sacrificial cover material, or alternatively the pavement section may be only partially completed until the need for most of the construction traffic has ended (for example, allow construction traffic to drive over the compacted base course, and then rework and repair the base course locally as needed) and then place the asphaltic concrete after the frequency of the infrastructure construction traffic has subsided.

It should be noted that after the infrastructure construction has been completed, the construction traffic associated with the subsequent construction of individual homes over a period of months or years should not negatively impact the performance of the completed standard or heavy-duty pavement section, as we expect the increase to the traffic loading frequencies stated in Section 4.4.2 of this report will be minor.

4.5 STORM WATER MANAGEMENT AREA

As requested, we performed four (4) constant head usual open hole tests at the above referenced property. Based on the results of the SFWMD's Usual Open Hole Test, the hydraulic conductivity rate was ranging from 1.69E-05 to 9.18E-05 cubic feet per feet-feet head (cfs/ft-ft.head). The detailed test results are attached in Appendix C.

It should be noted that the coefficients of permeability provided are not an infiltration rate. The actual infiltration rate is influenced by the coefficient of permeability as well as several factors including the elevation of the facility bottom, water level in the facility, the elevation of the wet season water table and the confining layer. These factors must be accounted for in an appropriate groundwater model to determine the infiltration rate of a given stratum.

UES performs hydraulic conductivity tests, including usual open hole tests, using generally accepted practices of the local stormwater management system design. However, the user of this information is cautioned that the potential variability of results and reproducibility associated with these influencing the permeability of a soil. These factors include, but are not limited to, soil grain size, soil particle arrangement and structure, dispersion of soil fines, density, and degree of saturation, soil heterogeneity, and soil anisotropy. Also, the permeability measured by such tests may not be representative of that of the total effective aquifer thickness. Factors of safety can compensate for part of the inherent test limitations but the designer must exercise judgment regarding final selection and applicability of provided soil design input parameters. Should the modeling analysis indicate marginally acceptable compliance with Water Management District design criteria, it may be advisable to perform more extensive and representative in-situ permeability testing by installing grouted piezometers or wells for slug testing. UES can perform these field tests if desired.



4.6 CONSTRUCTION RELATED SERVICES

We recommend that the owner retain Universal Engineering Sciences, Inc. to evaluate the pile driving criteria and monitoring and testing services during building pad preparation and pile installation on this project. The pile monitoring program should include performing an evaluation of the pile driving criteria; observing and evaluating the indicator pile installation; recording the penetration resistance of the piles during the driving process and verification of the allowable pile capacity estimated from acceptable driving criteria. We also recommend that our firm perform vibration monitoring during the pile installation activities as well as provide verification tests on the structural fill and subgrade soils.

The geotechnical engineering design does not end with the advertisement of the construction documents. It is an on-going process throughout construction. Because of our familiarity with the site conditions and the intent of the engineering design, our engineers are the most qualified to address problems that might arise during construction in a timely and cost-effective manner.

5.0 LIMITATIONS

Our services were rendered in general accordance with generally accepted principles and practices of the geotechnical community and our proposal contract agreement. It is not uncommon for project plans to change or for more specific project information to become known after completion of our geotechnical services. We strongly recommend that UES be contacted to review final design plans and modify or amend the recommendations contained herein as appropriate. ***If UES is not informed of changes to the final design information, the recommendations contained herein are not considered valid as we cannot be responsible for the consequences of changes of which we were not informed.***

Our field exploration did not find unsuitable or unexpected materials at the time of occurrence. However, borings for a typical geotechnical report are widely spaced and generally not sufficient for reliably detecting the presence of isolated, anomalous surface or subsurface conditions, or reliably estimating unsuitable or suitable material quantities. Accordingly, UES does not recommend relying on our boring information to negate presence of anomalous materials or for estimation of material quantities unless our contracted services ***specifically*** include sufficient exploration for such purpose(s) and within the report we so state that the level of exploration provided should be sufficient to detect such anomalous conditions or estimate such quantities. Therefore, UES will not be responsible for any claims, damages, or liability associated with any extrapolation, interpretation, or use of our data by others beyond the purpose(s) for which it is applicable or intended.

During the early stages of most construction projects, geotechnical issues not addressed in this report may arise. Because of the natural limitations inherent in working with the subsurface, it is not possible for a geotechnical engineer to predict and address all possible subsurface variations. An Association of Engineering Firms Practicing in the Geosciences (ASFE) publication, "Important Information about Your Geotechnical Engineering Report" appears in Appendix D, and will help explain the nature of geotechnical issues. Further, we present documents in Appendix D: Constraints and Restrictions, to bring to your attention the potential concerns and the basic limitations of a typical geotechnical report.



6.0 GEOTECHNICAL DESIGN SUMMARY

Project Name: Proposed Veterans Park Improvements
Project No: 0530.2000061.0000
Project Location: West Elkcarn Circle, Marco Island, Collier County, Florida

Foundation Design:

Foundation Type: Driven Concrete Piles
Embedment Depth: 10 to 20 feet
Pile Type & Size: 10 or 12 inch Square, Pre-stressed Concrete Piles

Ground Level

Supported Elements: Settlement of all shallow soil supported elements such as the ground level slab and any other shallow soil supported elements are possible due to the organic material underlying the site at shallow depths. The amount and time frame of the potential settlement is difficult to predict and to some extent will be dependent upon external factors such as fluctuations in the water table and site grading scheme:

Field Observation/Testing:

Utility Lines: Fill - Sand (SP)
Bedding Level compaction: 95% ASTM D1557 for upper 12 inches
Trench backfill compaction: 95% ASTM D1557 beside pipe and above in 6 "max loose lifts, 98% ASTM D1557 for final (upper) 12" lift

FLEXIBLE PAVEMENT SECTION CRITERIA

Component	Light Duty (in)	Heavy Duty (in)	Minimum Compaction	Minimum LBR or FBV	Frequency
Stabilized Subgrade*	6	8	98%	40 LBR	10,000 SF
Base Material**	6	8	98%	100 LBR	10,000 SF
Asphaltic Concrete***	1.5	2	† 95%	---	1 core/3000SF

* Stabilized Subgrade must be "free-draining" ($k \geq 1 \times 10^{-3}$ cm/sec) except for limerock base

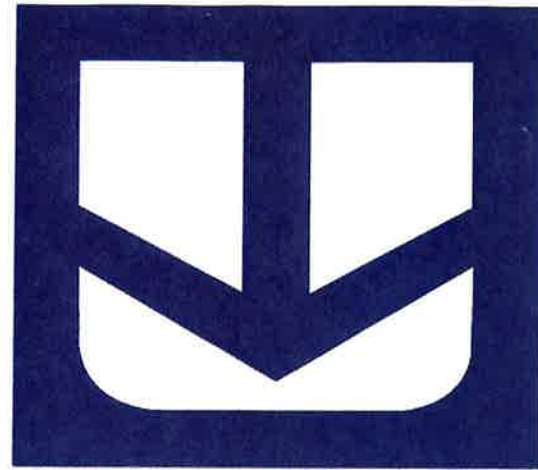
** Base Material choices: Limerock or Crushed Concrete

*** Type SP-9.5 or SP-12.5 FDOT 2010 Edition of Type S-I or S-III, FDOT 2000 Edition

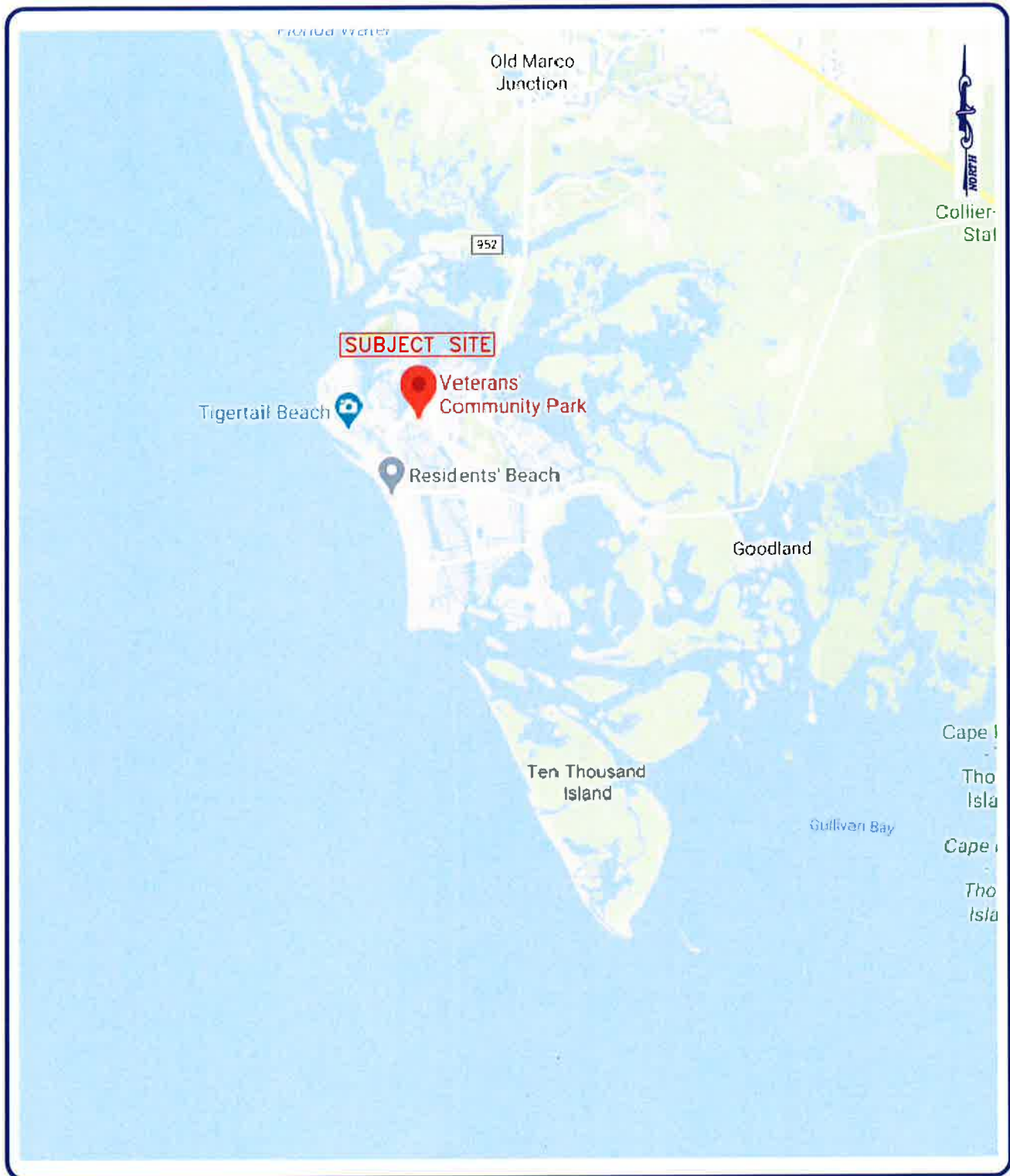
† Based on Marshall Density of laboratory mix design



APPENDIX A



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**PROPOSED VETERANS PARK IMPROVEMENTS
W. ELKCAM CIRCLE
MARCO ISLAND, COLLIER COUNTY, FLORIDA**

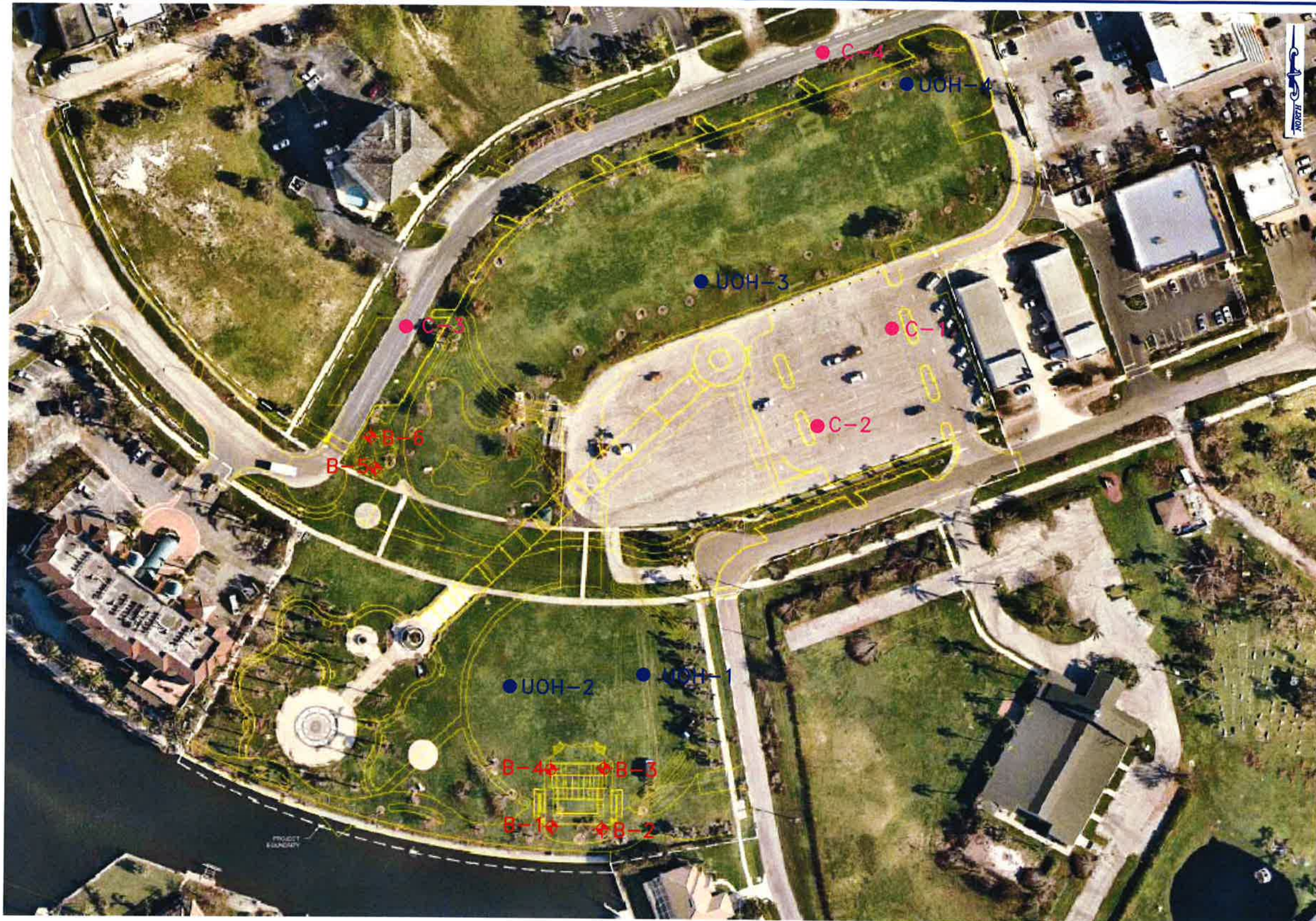
SITE LOCATION MAP

CLIENT: KIMLEY-HORN		DRAWN BY: AN	DATE: 04/20/2020
SCALE: NOT TO SCALE	PROJECT NO: 0530.2000061	REVIEWED BY: LW	APPENDIX: A

APPENDIX B



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ENGINEERING SCIENCES



LEGEND:

- C-# Approximate Coring location
- ◆ B-# Approximate SPT boring location
- UOH-# Approximate Usual Open Hole Test location

CLIENT: KIMLEY-HORN

PROPOSED VETERANS PARK IMPROVEMENTS
W. ELKCAM CIRCLE
MARCO ISLAND, COLLIER COUNTY, FLORIDA



APPENDIX:

B

DRAWN BY:	AN	DATE:	04/20/2020
REVIEWED BY:	LW	DATE:	04/20/2020
REPORT NO:		SCALE:	NOT TO SCALE
PROJECT NO:	0530.2000061.0000		



UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0530.2000061.0000

REPORT NO.:

PAGE: 1

PROJECT: Proposed Veterans Park Improvements
West Elcam Circle
Marco Island, Collier County, FL

BORING DESIGNATION: **B-01**
SECTION: TOWNSHIP:

SHEET: **1 of 1**
RANGE:

CLIENT: Kimley-Horn

G.S. ELEVATION (ft):

DATE STARTED: 4/15/20

LOCATION: See Boring Locaton Plan

WATER TABLE (ft): 6.2

DATE FINISHED: 4/15/20

REMARKS:

DATE OF READING: 04/15/2020

DRILLED BY: L/L JR/E

EST. W.S.W.T. (ft):

TYPE OF SAMPLING: ASTM D1586

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		UCS (tsf)	ORG. CONT. (%)
									LL	PI		
0						Medium Dense Brown and Light Brown Fine Sand with trace Shell Fragments (SP)						
		4-5-6	11									
		10-17-12	29			Medium Dense Light Brown and Light Gray Fine Sand (SP)						
		10-8-7	15									
5												
		3-3-4	7			Loose Dark Gray Peat with Sand and Roots (PT)						
		2-4-6	10			Loose to Medium Dense Dark Gray and Gray Fine Sand with Roots (SP)						
		3-8-4	12									
10												
		12-19-20	39			Dense and Very Dense Gray and Light Gray Fine Sand with varying amount of Shell Fragments (SP)						
15												
		15-15-22	37									
20												
		9-16-19	35									
25												
		19-18-34	52									
						BORING TERMINATED						

BORING LOG 0530.2000061.0000, PRO VETERANS PARK IMPROVEMENTS.GPJ UNIENGSC.GDT 4/20/20



UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0530.2000061.0000

REPORT NO.:

PAGE: 2

PROJECT: Proposed Veterans Park Improvements
West Elkcam Circle
Marco Island, Collier County, FL

BORING DESIGNATION: **B-02**
SECTION: TOWNSHIP:

SHEET: **1 of 1**
RANGE:

CLIENT: Kimley-Horn

G.S. ELEVATION (ft):

DATE STARTED: 4/15/20

LOCATION: See Boring Location Plan

WATER TABLE (ft): 6.0

DATE FINISHED: 4/15/20

REMARKS:

DATE OF READING: 04/15/2020

DRILLED BY: L/L JR/E

EST. W.S.W.T. (ft):

TYPE OF SAMPLING: ASTM D1586

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		UCS (tsf)	ORG. CONT. (%)
									LL	PI		
0						Medium Dense Brown, Gray, Light Brown and Light Gray Fine Sand with trace Roots (SP)						
		4-6-10	16									
		13-14-15	29			Medium Dense Light Brown and Light Gray Fine Sand with Shell Fragments (SP)						
		12-14-12	26									
5												
		9-7-4	11			Loose Dark Brown Peat with Sand (PT)						
		3-3-6	9			Loose Dark Gray Fine Sand with trace Roots (SP)						
		3-6-22	28			Medium Dense Brown Fine Sand with trace Roots (SP)						
10												
		6-10-14	24									
						Dense and Very Dense Gray and Light Gray Fine Sand with Shell Fragments (SP)						
15												
		9-17-22	39									
20												
		14-16-28	44									
25												
		26-30-39	69									
						BORING TERMINATED						

BORING LOG 0530.2000061.0000, PRO VETERANS PARK IMPROVEMENTS.GPJ UNIENGSC.GDT 4/20/20



UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0530.2000061.0000

REPORT NO.:

PAGE: 3

PROJECT: Proposed Veterans Park Improvements
West Elkcam Circle
Marco Island, Collier County, FL

BORING DESIGNATION: **B-03**
SECTION: TOWNSHIP:

SHEET: **1 of 1**
RANGE:

CLIENT: Kimley-Horn
LOCATION: See Boring Locaton Plan

G.S. ELEVATION (ft): DATE STARTED: 4/15/20

WATER TABLE (ft): 7.0 DATE FINISHED: 4/15/20

DATE OF READING: 04/15/2020 DRILLED BY: L/L JR/E

REMARKS:

EST. W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1586

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		UCS (tsf)	ORG. CONT. (%)
									LL	PI		
0												
		6-7-7	14			Medium Dense Light Brown Fine Sand with trace Shell Fragments (SP)						
		10-13-18	31			Dense to Medium Dense Brown, Light Brown and Light Gray Fine Sand (SP)						
		20-18-18	36									
5		10-9-5	14									
		1-3-4	7			Loose Dark Gray Muck (PT)						
		5-9-13	22			Medium Dense Brown, Dark Gray and Gray Fine Sand with trace Roots (SP)						
10		9-7-14	21									
						Dense Gray and Light Gray Fine Sand with trace Silt Fines and Shell Fragments (SP)						
15		13-15-19	34									
20		16-22-28	50									
						Very Dense Gray Fine Sand with Shell Fragments (SP)						
25		29-39-50/2"	50+									
						BORING TERMINATED						

BORING LOG 0530.2000061.0000. PRO VETERANS PARK IMPROVEMENTS.GPJ UNENEGSC.GDT 4/20/20



UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0530.2000061.0000

REPORT NO.:

PAGE: 4

PROJECT: Proposed Veterans Park Improvements
West Elcam Circle
Marco Island, Collier County, FL

BORING DESIGNATION: **B-04**
SECTION: TOWNSHIP:

SHEET: **1 of 1**
RANGE:

CLIENT: Kimley-Horn
LOCATION: See Boring Location Plan
REMARKS:

G.S. ELEVATION (ft): DATE STARTED: 4/15/20
WATER TABLE (ft): 5.8 DATE FINISHED: 4/15/20
DATE OF READING: 04/15/2020 DRILLED BY: L/L JR/E
EST. W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1586

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		UCS (tsf)	ORG. CONT. (%)
									LL	PI		
0						Medium Dense Brown and Light Brown Fine Sand with trace Shell Fragments (SP)						
		5-5-6	11									
		12-16-18	34			Dense to Medium Dense Light Brown and Light Gray Fine Sand (SP)						
		15-9-11	20									
5												
		9-4-5	9			Loose Gray Fine Sand with trace Roots (SP)						
						Very Soft Gray Organic Clay (OH)						
		1-1-4	5			Loose and Dense Brown, Dark Gray and Gray Fine Sand with trace Roots (SP)						
		3-5-9	14									
10												
		11-20-18	38			Dense to Medium Dense Gray, Light Brown and Light Gray Fine Sand with trace Silt Fines (SP)						
15												
		12-19-26	45									
20												
		11-13-15	28									
						Very Dense Gray Fine Sand with Shell Fragments (SP)						
25												
		34-50-50/3"	50+									
						BORING TERMINATED						

BORING LOG 0530.2000061.0000, PRO VETERANS PARK IMPROVEMENTS GPJ, UNIENGSC.GDT 4/20/20



UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0530.2000061.0000

REPORT NO.:

PAGE: 5

PROJECT: Proposed Veterans Park Improvements
West Elkcam Circle
Marco Island, Collier County, FL

BORING DESIGNATION: **B-05**
SECTION:

TOWNSHIP:

SHEET: **1 of 1**
RANGE:

CLIENT: Kimley-Horn

G.S. ELEVATION (ft):

DATE STARTED: 4/16/20

LOCATION: See Boring Locaton Plan

WATER TABLE (ft): 4.6

DATE FINISHED: 4/16/20

REMARKS:

DATE OF READING: 04/16/2020

DRILLED BY: L/L JR/E

EST. W.S.W.T. (ft):

TYPE OF SAMPLING: ASTM D1586

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		UCS (tsf)	ORG. CONT. (%)
									LL	PI		
0						Light Gray and Dark Gray Fine Sand (SP)						
						Dark Gray and Gray Muck and Organic Clay (PT)						
5		5-9-13	22			Medium Dense and Dense Brown and Light Brown Fine Sand (SP)						
		8-7-14	21									
		15-17-26	43									
10		17-26-47	73			Very Dense Brown and Light Gray Fine Sand with trace Shell Fragments (SP)						
15		41-50/3"	50+			Hard Rock						
						BORING TERMINATED						

BORING LOG 0530.2000061.0000, PRO VETERANS PARK IMPROVEMENTS.GPJ, UNENGSC.GDT 4/20/20



UNIVERSAL ENGINEERING SCIENCES BORING LOG

PROJECT NO.: 0530.2000061.0000

REPORT NO.:

PAGE: 6

PROJECT: Proposed Veterans Park Improvements
West Elkcam Circle
Marco Island, Collier County, FL

BORING DESIGNATION: **B-06**
SECTION: TOWNSHIP:

SHEET: **1 of 1**
RANGE:

CLIENT: Kimley-Horn
LOCATION: See Boring Location Plan
REMARKS:

G.S. ELEVATION (ft): DATE STARTED: 4/16/20
WATER TABLE (ft): 4.4 DATE FINISHED: 4/16/20
DATE OF READING: 04/16/2020 DRILLED BY: L/L JR/E
EST. W.S.W.T. (ft): TYPE OF SAMPLING: ASTM D1586

DEPTH (FT.)	S A M P L E	BLOWS PER 6" INCREMENT	N (BLOWS/ FT.)	W.T.	S Y M B O L	DESCRIPTION	-200 (%)	MC (%)	ATTERBERG LIMITS		UCS (tsf)	ORG. CONT. (%)
									LL	PI		
0						Light Gray Fine Sand (SP)						
						Dark Brown Muck (PT)						
5		1-3-9	12			Medium Dense Gray Fine Sand with trace Organics (SP)						
		3-4-13	17			Medium Dense Light Gray Fine Sand with trace Roots (SP)						
		11-17-24	41			Medium Dense, Dense and Very Dense Light Gray Fine Sand with trace Shell Fragments (SP)						
10		10-17-10	27									
15		16-34-50	84			BORING TERMINATED						

BORING LOG 0530.2000061.0000 PRO VETERANS PARK IMPROVEMENTS.GPJ UNIENGSC.GDT 4/20/20



KEY TO BORING LOGS

TERMS DESCRIBING CONSISTENCY OR CONDITION

COARSE-GRAINED SOILS (major portions retained on No. 200 sieve): Includes (1) clean gravel and sands and (2) silty or clayey gravels and sands. Condition is rated according to relative density as determined by laboratory tests or standard penetration resistance tests.

Descriptive Terms	Relative Density	SPT Blow Count
Very loose	0 to 15 %	< 4
Loose	15 to 35 %	4 to 10
Medium dense	35 to 65 %	10 to 30
Dense	65 to 85 %	30 to 60
Very dense	85 to 100 %	> 50

FINE-GRAINED SOILS (major portions passing on No. 200 sieve): Includes (1) inorganic and organic silts and clays, (2) gravelly, sandy, or silty clays, and (3) clayey silts. Consistency is rated according to shearing strength, as indicated by penetrometer readings, SPT blow count, or unconfined compression tests.

Unconfined Compressive

Descriptive Terms	Strength kPa	SPT Blow Count
Very soft	< 25	< 2
Soft	25 to 50	2 to 4
Medium stiff	50 to 100	4 to 8
Stiff	100 to 200	8 to 15
Very stiff	200 to 400	15 to 30
Hard	> 400	> 30

GENERAL NOTES

1. Classifications are based on the United Soil Classification System and include consistency, moisture, and color. Field descriptions have been modified to reflect results of laboratory tests where deemed appropriate.

2. Surface elevations are based on topographic maps and estimated locations.

3. Descriptions on these boring logs apply only at the specific boring locations and at the time the borings were made. They are not guaranteed to be representative of subsurface conditions at other locations or times.

SYMBOLS

Y Measured Water Table Level
Z Estimated Seasonal High Water Table

Major Divisions	Group Symbols	Typical Names	Laboratory Classification Criteria	Particle Size
Coarse-Grained Soils (More than half the material is larger than No. 200 sieve size) Gravels (More than half of coarse fraction is larger than No. 4 sieve size) Sands (More than half of coarse fraction is smaller than No. 4 sieve size) Sands with fines (Appreciable amount of fines) Clean sands (Little or no fines) Gravel with fines (Appreciable amount of fines) Clean gravel (Little or no fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3	Sieve sizes < #200
	GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines	Not meeting all gradation requirements for GW	
	GM	Silty gravels, gravel-sand-silt mixtures	Atterberg limits below "A" line or P.I. less than 4	
	GC	Clayey gravels, gravel-sand-silt mixtures	Atterberg limits above "A" line or P.I. greater than 7	
	SW	Well-graded sands, gravelly sands, little or no fines	$C_u = \frac{D_{60}}{D_{10}}$ greater than 6; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3	mm < 0.075
	SP	Poorly-graded sands, gravelly sands, little or no fines	Not meeting all gradation requirements for SW	
Fine-Grained Soils (More than half the material is smaller than No. 200 sieve size) Silt and Clays (Liquid limit less than 50) Silt and Clays (Liquid limit greater than 50) Highly Organic Soils	SM	Silty sands, sand-silt mixtures	Atterberg limits below "A" line or P.I. less than 4	Material Silt or clay
	SC	Clayey sands, sand-clay mixtures	Atterberg limits above "A" line or P.I. greater than 7	
	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity		
	CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays		
	OL	Organic silts and organic silty clays of low plasticity		
	MH	Inorganic silts, micaceous or distomaceous fine sandy or silty soils, organic silts		
Plasticity Chart	CH	Inorganic clays of high plasticity, fat clays		
	OH	Organic clays of medium to high plasticity, organic silts		
	Pt	Peat and other highly organic soils		

Determine percentages of sand and gravel from grain size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve) coarse-grained soils are classified as follows:

Less than 5 percent..... GW, GP, SW, SP
More than 12 percent..... GM, GC, SM, SC
5 to 12 percent..... Borderline cases requiring dual symbols*

FOR CLASSIFICATION OF FINE-GRAINED SOIL AND FINE-GRAINED FRACTION OF COARSE-GRAINED SOILS

Plasticity Chart

Material	Particle Size	Sieve
Gravel	mm	
Fine	4.75 to 19.1	#4 to #10
Coarse	19.1 to 76.2	#10 to #20
Cobble	76.2 to 304.8	#20 to #60
Boulders	304.8 to 914.4	12 in. to 36 in.

* When the percent passing a No. 200 sieve is between 5% and 12%, a dual symbol is used to designate the soil. For example: SP-SC, poorly-graded sand with clay content between 5% and 12%.

APPENDIX C



UNIVERSAL
ENGINEERING SCIENCES



UNIVERSAL ENGINEERING SCIENCES

Consultants In: Geotechnical Engineering • Environmental Sciences
Geophysical Services • Construction Materials Testing • Threshold Inspection
Building Inspection • Plan Review • Building Code Administration

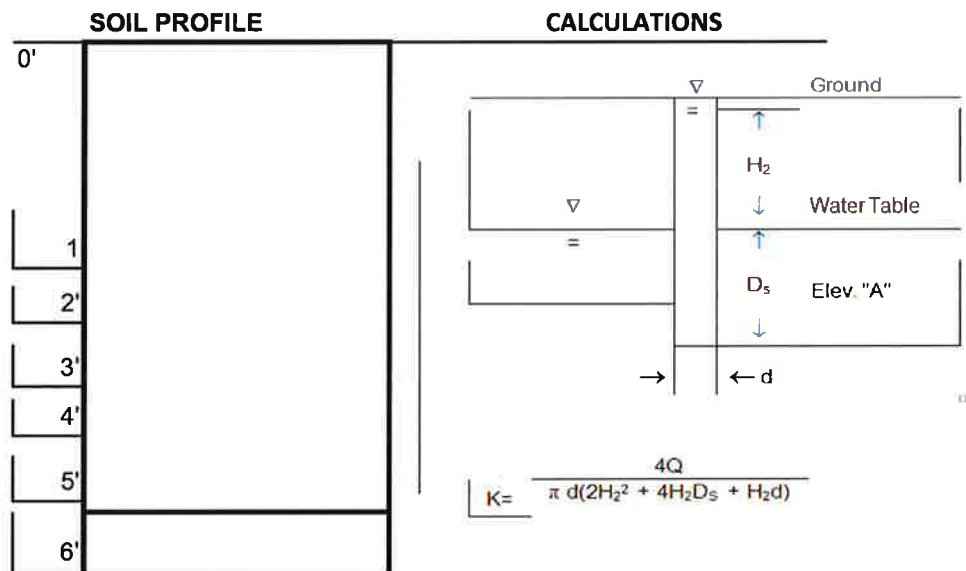
LOCATIONS:

- Atlanta
- Daytona Beach
- Fort Myers
- Fort Pierce
- Gainesville
- Jacksonville
- Miami
- Ocala
- Orlando (Headquarters)
- Palm Coast
- Panama City
- Pensacola
- Rockledge
- Sarasota
- St. Petersburg
- Tampa
- Tifton
- West Palm Beach

EXFILTRATION TEST SOUTH FLORIDA WATER MANAGEMENT DISTRICT USUAL OPEN HOLE TEST

Project Proposed Veterans Park Improvements
Date 4/16/2020
Open Hole No. UOH-1

Gal	Volume	4	
min	Time	15	Average
gal/min	Flow Rate	0.27	2.67E-01
gal/min	flow rate	F	2.67E-01
cfs	flow rate	Q	5.94E-04
ft	diam hole	d	0.60
ft	depth WT	H ₂	5.50
ft	Sat.dpth	D _s	0.50
ft	btm. Hole	Elev A	6.00
Cfs/ft² -ft head	Hyd.Cond	K	1.69E-05





UNIVERSAL ENGINEERING SCIENCES

Consultants In: Geotechnical Engineering • Environmental Sciences
Geophysical Services • Construction Materials Testing • Threshold Inspection
Building Inspection • Plan Review • Building Code Administration

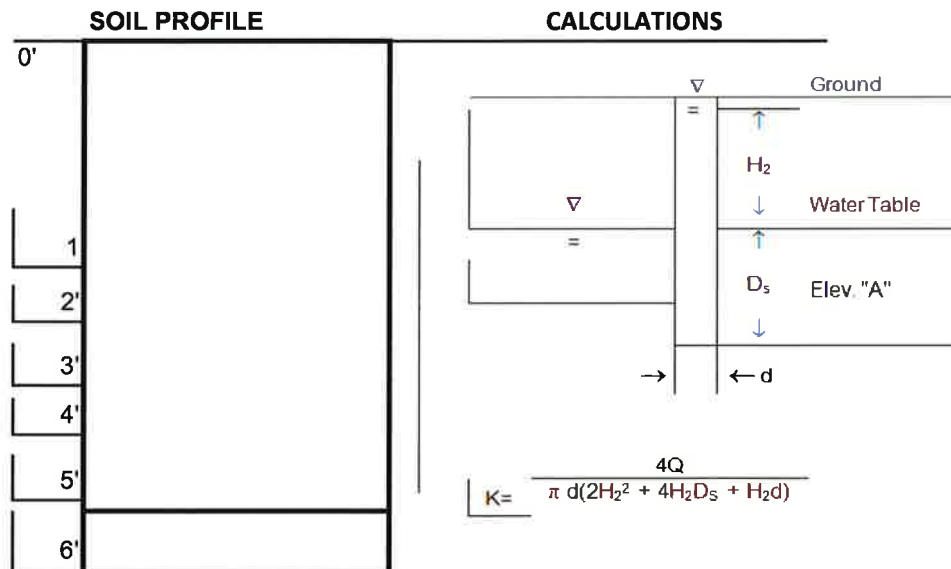
LOCATIONS:

- Atlanta
- Daytona Beach
- Fort Myers
- Fort Pierce
- Gainesville
- Jacksonville
- Miami
- Ocala
- Orlando (Headquarters)
- Palm Coast
- Panama City
- Pensacola
- Rockledge
- Sarasota
- St. Petersburg
- Tampa
- Tifton
- West Palm Beach

EXFILTRATION TEST SOUTH FLORIDA WATER MANAGEMENT DISTRICT USUAL OPEN HOLE TEST

Project Proposed Veterans Park Improvements
Date 4/16/2020
Open Hole No. UOH-2

Gal	Volume	20	
min	Time	15	Average
gal/min	Flow Rate	1.33	1.33E+00
gal/min	flow rate	F	1.33E+00
cfs	flow rate	Q	2.97E-03
ft	diam hole	d	0.60
ft	depth WT	H ₂	5.70
ft	Sat.dpth	D _s	0.80
ft	btm. Hole	Elev A	6.50
Cfs/ft² -ft head	Hyd.Cond	K	7.28E-05





UNIVERSAL ENGINEERING SCIENCES

Consultants In: Geotechnical Engineering • Environmental Sciences
Geophysical Services • Construction Materials Testing • Threshold Inspection
Building Inspection • Plan Review • Building Code Administration

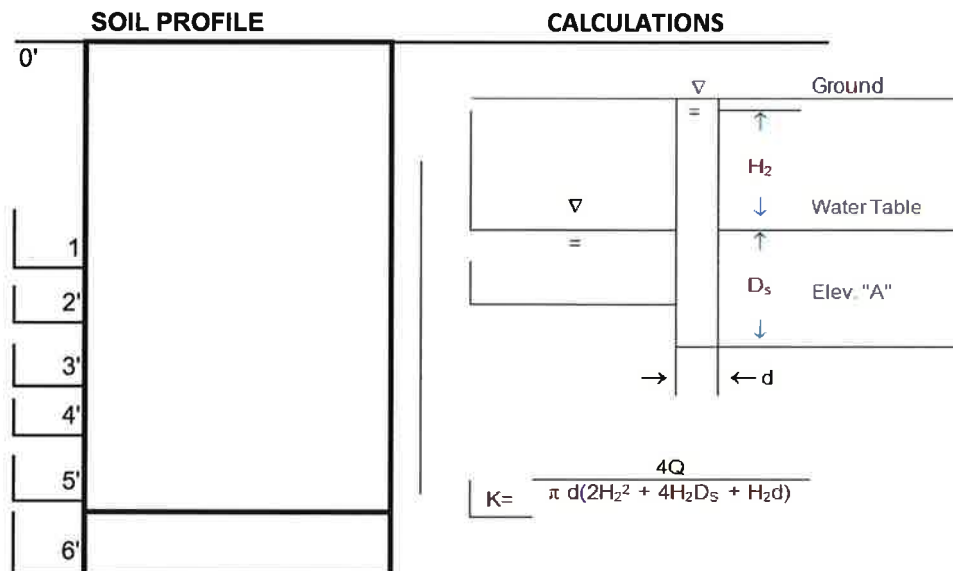
LOCATIONS:

- Atlanta
- Daytona Beach
- Fort Myers
- Fort Pierce
- Gainesville
- Jacksonville
- Miami
- Ocala
- Orlando (Headquarters)
- Palm Coast
- Panama City
- Pensacola
- Rockledge
- Sarasota
- St. Petersburg
- Tampa
- Tifton
- West Palm Beach

EXFILTRATION TEST SOUTH FLORIDA WATER MANAGEMENT DISTRICT USUAL OPEN HOLE TEST

Project Proposed Veterans Park Improvements
Date 4/16/2020
Open Hole No. UOH-3

Gal	Volume	29	
min	Time	15	Average
gal/min	Flow Rate	1.93	1.93E+00
gal/min	flow rate	F	1.93E+00
cfs	flow rate	Q	4.31E-03
ft	diam hole	d	0.60
ft	depth WT	H ₂	6.00
ft	Sat.dpth	D _s	1.00
ft	btm. Hole	Elev A	7.00
Cfs/ft² -ft head	Hyd.Cond	K	9.18E-05





UNIVERSAL ENGINEERING SCIENCES

Consultants In: Geotechnical Engineering • Environmental Sciences
Geophysical Services • Construction Materials Testing • Threshold Inspection
Building Inspection • Plan Review • Building Code Administration

LOCATIONS:

- Atlanta
- Daytona Beach
- Fort Myers
- Fort Pierce
- Gainesville
- Jacksonville
- Miami
- Ocala
- Orlando (Headquarters)
- Palm Coast
- Panama City
- Pensacola
- Rockledge
- Sarasota
- St. Petersburg
- Tampa
- Tifton
- West Palm Beach

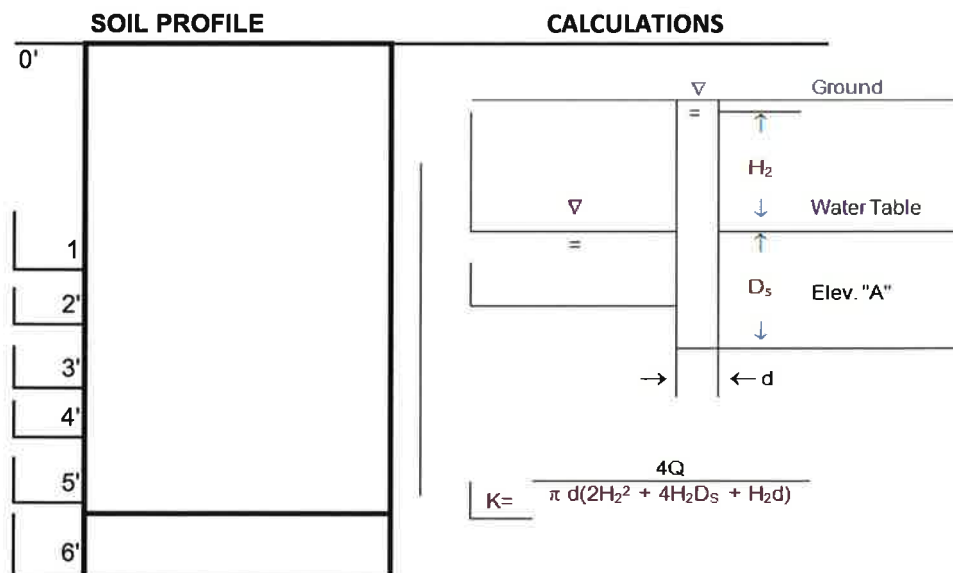
EXFILTRATION TEST SOUTH FLORIDA WATER MANAGEMENT DISTRICT USUAL OPEN HOLE TEST

Project Proposed Veterans Park Improvements

Date 4/16/2020

Open Hole No. UOH-4

Gal	Volume	5	
min	Time	15	Average
gal/min	Flow Rate	0.33	3.33E-01
gal/min	flow rate	F	3.33E-01
cfs	flow rate	Q	7.43E-04
ft	diam hole	d	0.60
ft	depth WT	H ₂	5.50
ft	Sat.dpth	D _s	0.50
ft	btm. Hole	Elev A	6.00
Cfs/ft² -ft head	Hyd.Cond	K	2.11E-05



**PROPOSED VETERANS PARK IMPROVEMENTS
WEST ELKCAM CIRLCE
MARCO ISLAND, COLLIER COUNTY
0530.2000061.0000**

SUMMARY PAVEMENT CORE RESULTS

Core #	Location	Asphalt and Concrete Thickness	Base Thickness	Stabilized Subgrade Thickness
C-1	North side of parking lot (See core location plan)	1" - Asphalt 6" - Concrete	0	20" - Sand with some rock
C-2	South side of parking lot (See core location plan)	0.9" - Asphalt 5.5" - Concrete	0	19" - Sand with some rock
C-3	South side of Park Avenue (See core location plan)	2.2" - Asphalt	11"	0 Fine Sand with trace rock
C-4	North side of Park Avenue (See core location plan)	2.3" - Asphalt	7.5"	0 Fine Sand with trace rock

APPENDIX D



UNIVERSAL
ENGINEERING SCIENCES

Important Information about Your Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you — should apply the report for any purpose or project except the one originally contemplated.*

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,

- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final*, because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time to perform additional study.* Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that

have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely on Your ASFE-Member Geotechnical Engineer for Additional Assistance

Membership in ASFE/THE BEST PEOPLE ON EARTH exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.

ASFE THE GEOPROFESSIONAL
BUSINESS ASSOCIATION

8811 Colesville Road/Suite G106, Silver Spring, MD 20910

Telephone: 301/565-2733 Facsimile: 301/589-2017

e-mail: info@asfe.org www.asfe.org

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CONSTRAINTS AND RESTRICTIONS

WARRANTY

Universal Engineering Sciences has prepared this report for our client for his exclusive use, in accordance with generally accepted soil and foundation engineering practices, and makes no other warranty either expressed or implied as to the professional advice provided in the report.

UNANTICIPATED SOIL

The analysis and recommendations submitted in this report are based upon the data obtained from soil borings performed at the locations indicated on the boring Location Plan. This report does not reflect any variations which may occur between these borings.

The nature and extent of variations between borings may not become known until excavation begins. If variations appear, we may have to re-evaluate our recommendations after performing on-site observations and noting the characteristics of any variations.

CHANGED CONDITIONS

We recommend that the specifications for the project require that the contractor immediately notify Universal Engineering Sciences, as well as the owner, when subsurface conditions are encountered that are different from those present in this report.

No claim by the contractor for any conditions differing from those anticipated in the plans, specifications, and those found in this report, should be allowed unless the contractor notifies the owner and Universal Engineering Sciences of such changed conditions. Further, we recommend that all foundation work and site improvements be observed by a representative of Universal Engineering Sciences to monitor field conditions and changes, to verify design assumptions and to evaluate and recommend any appropriate modifications to this report.

MISINTERPRETATION OF SOIL ENGINEERING REPORT

Universal Engineering Sciences is responsible for the conclusions and opinion contained within this report based upon the data relating only to the specific project and location discussed herein. If the conclusions or recommendations based upon the data presented are made by others, those conclusions or recommendations are not the responsibility of Universal Engineering Sciences.

CHANGED STRUCTURE OR LOCATION

This report was prepared in order to aid in the evaluation of this project and to assist the architect or engineer in the design of this project. If any changes in the design or location of the structure as outlined in this report are planned, or if any structures are included or added that are not discussed in the report, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusions modified or approved by Universal Engineering Sciences.

USE OF REPORT BY BIDDERS

Bidders who are examining the report prior to submission of a bid are cautioned that this report was prepared as an aid to the designers of the project and it may affect actual construction operations.

Bidders are urged to make their own soil borings, test pits, test caissons or other investigations determine those conditions that may affect construction operations. Universal Engineering Sciences cannot be responsible for any interpretations made from this report or the attached boring logs with regard to their adequacy in reflecting subsurface conditions which will affect construction operations.

STRATA CHANGES

Strata changes are indicated by a definite line on the boring logs which accompany this report. However, the actual change in the ground may be more gradual. Where changes occur between soil samples, the location of the change must necessarily be estimated using all available information and may not be shown at the exact depth.

OBSERVATIONS DURING DRILLING

Attempts are made to detect and/or identify occurrences during drilling and sampling, such as: water level, boulders, zones of lost circulation, relative ease or resistance to drilling progress, unusual sample recovery, variation of driving resistance, obstructions, etc.; however, lack of mention does not preclude their presence.

WATER LEVELS

Water level readings have been made in the drill holes during drilling and they indicated normally occurring conditions. Water levels may not have been stabilized at the last reading. This data has been reviewed and interpretations made in this report. However, it must be noted that fluctuation in the level of the groundwater may occur due to variations in rainfall, temperature, tides, and other factors not evident at the time measurements were made and reported. Since the probability of such variations is anticipated, design drawings and specifications should accommodate such possibilities and construction planning should be based upon such assumptions and variations.

LOCATION OF BURIED OBJECTS

All users of this report are cautioned that there was no requirement for Universal Engineering Sciences to attempt to locate any man-made buried objects during the course of this exploration and that no attempt was made by Universal Engineering Sciences to locate any such buried objects which are subsequently encountered during construction that are not discussed within the text of this report.

TIME

This report reflects the soil conditions at the time of investigation. If the report is not used in a reasonable amount of time, significant changes to the site may occur and additional reviews may be required.

NOAA Tide Data Marco Island



Home (/) / Products ([products.html](#)) / Datums ([stations.html?type=Datums](#)) /
8724967 MARCO ISLAND, CAXAMBAS PASS, FL Favorite Stations

Station Info

Tides/Water Levels

Meteorological Obs.

Phys. Oceanography

Datums for 8724967, MARCO ISLAND, CAXAMBAS PASS FL

NOTICE: All data values are relative to the NAVD88.

Elevations on NAVD88

Station: 8724967, MARCO ISLAND, CAXAMBAS PASS, FL

Status: Accepted (Apr 17 2003)

Units: Feet

Control Station: 8725110 Naples, Gulf of Mexico, FL

T.M.: 75

Epoch: ([/datum_options.html#NTDE](#)) 1983-2001

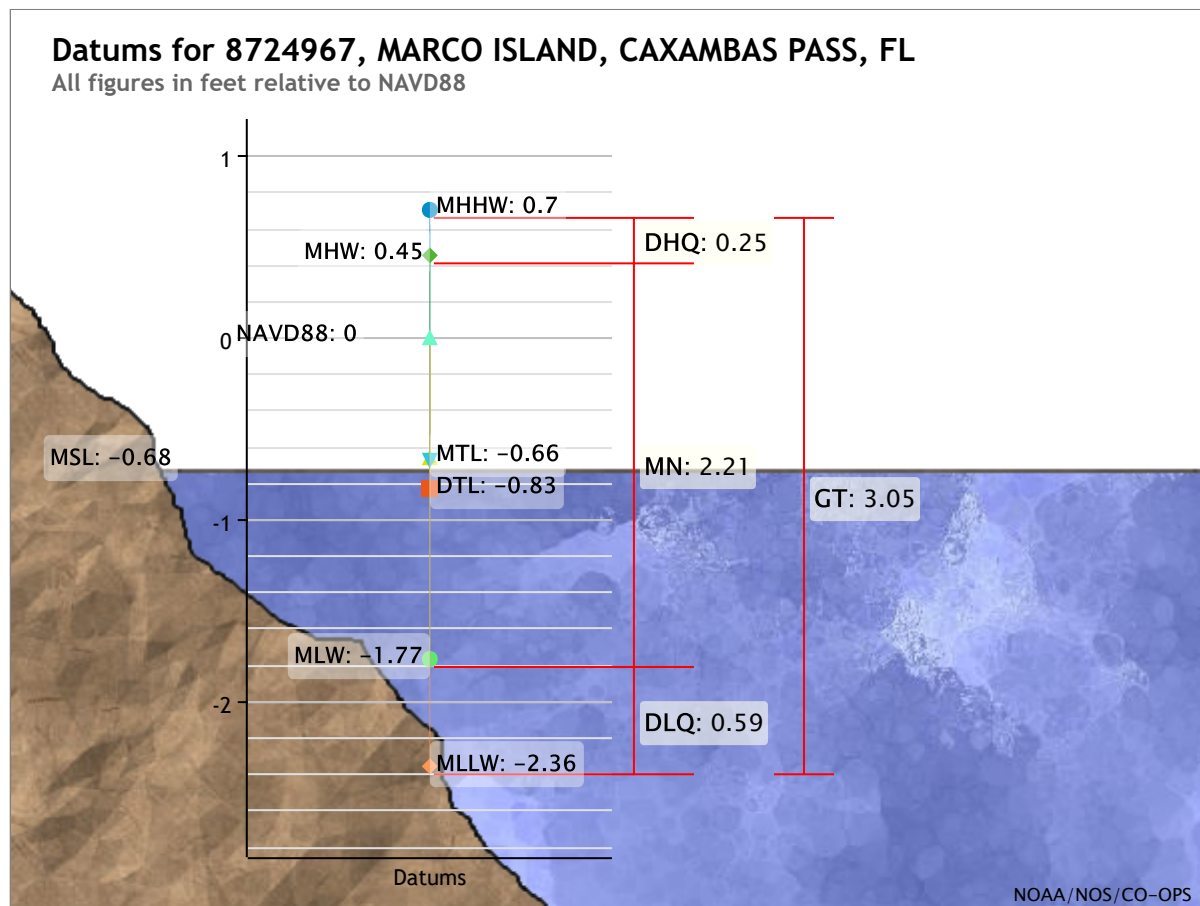
Datum: NAVD88

Datum	Value	Description
MHHW (/datum_options.html#MHHW)	0.70	Mean Higher-High Water
MHW (/datum_options.html#MHW)	0.45	Mean High Water
MTL (/datum_options.html#MTL)	-0.66	Mean Tide Level
MSL (/datum_options.html#MSL)	-0.68	Mean Sea Level
DTL (/datum_options.html#DTL)	-0.83	Mean Diurnal Tide Level
MLW (/datum_options.html#MLW)	-1.77	Mean Low Water
MLLW (/datum_options.html#MLLW)	-2.36	Mean Lower-Low Water
NAVD88 (/datum_options.html)	0.00	North American Vertical Datum of 1988
STND (/datum_options.html#STND)	-3.54	Station Datum
GT (/datum_options.html#GT)	3.05	Great Diurnal Range
MN (/datum_options.html#MN)	2.21	Mean Range of Tide
DHQ (/datum_options.html#DHQ)	0.25	Mean Diurnal High Water Inequality
DLQ (/datum_options.html#DLQ)	0.59	Mean Diurnal Low Water Inequality

Datum	Value	Description
HWI (/datum_options.html#HWI)	5.54	Greenwich High Water Interval (in hours)
LWI (/datum_options.html#LWI)	11.59	Greenwich Low Water Interval (in hours)
Max Tide (/datum_options.html#MAXTIDE)	2.09	Highest Observed Tide
Max Tide Date & Time (/datum_options.html#MAXTIDEDT)	06/02/1977 12:00	Highest Observed Tide Date & Time
Min Tide (/datum_options.html#MINTIDE)	-3.98	Lowest Observed Tide
Min Tide Date & Time (/datum_options.html#MINTIDEDT)	01/18/1976 07:00	Lowest Observed Tide Date & Time
HAT (/datum_options.html#HAT)	1.47	Highest Astronomical Tide
HAT Date & Time	10/16/1989 05:30	HAT Date and Time
LAT (/datum_options.html#LAT)	-3.44	Lowest Astronomical Tide
LAT Date & Time	12/31/1986 11:48	LAT Date and Time

Tidal Datum Analysis Periods

02/01/1976 - 01/31/1979



Showing datums for

8724967 MARCO ISLAND, C...

Datum

NAVD88 ▼

Data Units ☒ Feet
☐ Meters

Epoch ☒ Present (1983-2001)
☐ Superseded (1960-1978)

Submit

Show nearby stations

Products available at 8724967 MARCO ISLAND, CAXAMBAS PASS, FL

TIDES/WATER LEVELS

Water Levels

NOAA Tide Predictions (/noaatidepredictions.html?id=8724967)

Harmonic Constituents (/harcon.html?id=8724967)

Sea Level Trends

Datums (/datums.html?id=8724967)

Bench Mark Sheets (/benchmarks.html?id=8724967)

Extreme Water Levels

Reports (/reports.html?id=8724967)

METEOROLOGICAL/OTHER

Meteorological Observations

Water Temp/Conductivity

PORTS®

This station is not a member of PORTS®

OPERATIONAL FORECAST SYSTEMS

This station is not a member of OFS

INFORMATION

Station Home Page (/stationhome.html?id=8724967)



[Data Inventory \(/inventory.html?id=8724967\)](/inventory.html?id=8724967)

[Measurement Specifications \(/measure.html\)](/measure.html)

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APPENDIX B: SURFACE WATER MANAGEMENT CALCULATIONS

SURFACE WATER MANAGEMENT CALCULATIONS

Veteran Park Post-Development Basin Calculations

Land Use	Total Area (ac)
New Building	0.16
Additional impervious	0.91
Total Post Impervious	4.44
Pervious Area	6.11
Total	10.71

Design Parameters:

Pre-Impervious Area (ac)	3.53
Post- Impervious Area (ac)	4.44
Net Increase Imp. Area (ac)	0.91
Net Imp. Area Less Bldg. (ac)	0.75
Control Elv. (ft) NAVD88	1.00

Water Quality Calculations:

2.5 Inches over 100% of Added Impervious	
Site Area for WQ Calcs (SAWQ)	
Net Increase Imp. Area - Building) (ac) =	0.75
Imp Area for WQ Calc (IAWQ)	
Road+parking+sidewalk (ac) =	0.75
% Imp for WQ Calcs (%IMP)	
(IAWQ / SAWQ) x 100% =	100%
Treatment Depth	
2.5 Inches x % IMP (in) =	2.50
Volume Required to be Treated (TRT VOL)	
Treatment Depth x SAWQ x 1 ft./12 in. (ac-ft)	0.16
=	
Volume Required for Impaired Waters (IMPRD WATERS)	
TRT VOL x 150% = (ac-ft)	0.23
Volume Required with Dry Detention	
IMPRD WATERS x 75% = (ac-ft)	0.18

WQ Volume Required (acre-ft)	0.18
Volume/LF of Inf. Pipe (cf) (18")	6.9
Volume/LF of Inf. Pipe (cf) (24")	9.1
Infiltration Pipe Length (LF) (18")	3,385
Infiltration Pipe Length (LF) (24")	1,114
WQ Volume Provided in Pipe (ac-ft)	0.77

System

Recovery:

The following calculations estimate the length of an allowable bleeder weir utilizing the average of the water quality elevation and elevation after 0.5 inches has been discharged as H and the allowable bleed down of 0.5 inches in 24 hours as the flow.

Weir Length:

Flow (Q): (SAWQ * 0.5 in/24hr) (cfs)=	0.02
Treatment Depth (treatment vol/inf. trench area (ft)=	2.50
Recovery Depth : (0.5 in * total area /inf. trench area) =	0.22
Head (H): (treatment depth + recovery depth)/2 =	1.36
Weir Coefficient (C) =	3.13
Weir Length $[Q/(CH^{1.5})(12\text{in/ft})]$ (in) =	0.04

The proposed design will comply with the District's bleed down requirements as long as the total weir width below the water quality elevation is less than or equal to the length shown above.

Basin 1 Stage Storage Table

Stage (ft NAVD)	Pervious	Pavement	Total	Vault Storage 0.03 ac-ft	Volume (ac-ft)	Cum. Volume (ac-ft)
	0.21 ac	0.30 ac	Area			
1.0	0.0	0.00	0.00	0.00	0.00	0.00
1.5	0.0	0.00	0.00	0.00	0.00	0.00
2.0	0.0	0.00	0.00	0.01	0.01	0.01
2.5	0.0	0.00	0.00	0.01	0.01	0.01
3.0	0.0	0.00	0.00	0.02	0.02	0.02
3.5	0.0	0.00	0.00	0.02	0.02	0.02
4.5	0.1	0.12	0.20	0.00	0.05	0.08
5.0	0.2	0.18	0.35	0.00	0.14	0.22
6.0	0.2	0.30	0.51	0.00	0.24	0.66

Basin 2 Stage Storage Table

Stage (ft NAVD)	Pervious	Pavement	Total Area (ac)	Vault Storage 0.50 ac-ft	Volume (ac-ft)	Cum. Volume (ac-ft)
	2.75 ac	1.74 ac				
1.0	0.0	0.00	0.00	0.00	0.00	0.00
1.5	0.0	0.00	0.00	0.08	0.08	0.08
2.0	0.0	0.00	0.00	0.17	0.17	0.17
2.5	0.0	0.00	0.00	0.25	0.25	0.25
3.0	0.0	0.00	0.00	0.33	0.33	0.33
3.5	0.0	0.00	0.00	0.41	0.41	0.41
4.0	0.0	0.00	0.00	0.50	0.50	0.50
4.5	0.8	0.52	1.35	0.00	0.34	0.83
5.0	1.4	0.87	2.25	0.00	0.90	1.73
5.5	1.7	1.04	2.69	0.00	1.23	2.97
6.5	2.2	1.39	3.59	0.00	1.68	6.11
7.0	2.5	1.57	4.04	0.00	1.91	8.02
7.5	2.5	1.57	4.04	0.00	2.02	10.04
8.0	2.8	1.74	4.49	0.00	2.13	12.17

Basin 3 Stage Storage Table

Stage (ft NAVD)	Pervious	Pavement	Total Area (ac)	Vault Storage 0.25 ac-ft	Volume (ac-ft)	Cum. Volume (ac-ft)
	2.25 ac	1.02 ac				
1.0	0.00	0.00	0.00	0.00	0.00	0.00
1.5	0.00	0.00	0.00	0.04	0.04	0.04
2.0	0.00	0.00	0.00	0.08	0.08	0.08
2.5	0.00	0.00	0.00	0.12	0.12	0.12
3.0	0.00	0.00	0.00	0.16	0.16	0.16
3.5	0.00	0.00	0.00	0.21	0.21	0.21
4.0	0.00	0.00	0.00	0.25	0.25	0.25
4.5	0.23	0.10	0.33	0.00	0.08	0.33
5.0	0.45	0.20	0.65	0.00	0.25	0.57
5.5	0.90	0.41	1.31	0.00	0.49	1.06
6.0	1.58	0.71	2.29	0.00	0.90	1.96
6.5	1.80	0.82	2.62	0.00	1.23	3.19
7.0	2.03	0.92	2.94	0.00	1.39	4.58
7.5	2.03	0.92	2.94	0.00	1.47	6.05

8.0	2.25	1.02	3.27	0.00	1.55	7.60
-----	------	------	------	------	------	------

Treatment Volume Calculations in Exfiltration Pipes (See Sheet C-12 of the Construction Documents for more details):

Area in 18" Exfiltration Pipe:

$$\frac{\pi}{4} (\text{Average Pipe I.D.})^2 = \frac{\pi}{4} \left(\frac{18.2}{12} \right)^2 * 1ft = 1.8 ft^2$$

Area in 24" Exfiltration Pipe:

$$\frac{\pi}{4} (\text{Average Pipe I.D.})^2 = \frac{\pi}{4} \left(\frac{24.1}{12} \right)^2 * 1ft = 3.2 ft^2$$

Area of 18" Exfiltration Trench:

$$\begin{aligned} & \text{Width (Avg. Pipe O.D. + 4')} * \text{Height (Pipe Thickness + Avg. Pipe I.D. + 1ft)} \\ & = \left(\left(\frac{21.4}{12} \right) + 4' \right) * \left(\frac{\frac{21.4}{12} - \frac{18.2}{12}}{2} + \frac{18.2}{12} + 1ft \right) = 15.3 ft^2 \end{aligned}$$

Area of 24" Exfiltration Trench:

$$\begin{aligned} & \text{Width (Avg. Pipe O.D. + 4')} * \text{Height (Pipe Thickness + Avg. Pipe I.D. + 1ft)} \\ & = \left(\left(\frac{28}{12} \right) + 4' \right) * \left(\frac{\frac{28}{12} - \frac{24.1}{12}}{2} + \frac{24.1}{12} + 1ft \right) = 19.0 ft^2 \end{aligned}$$

Volume of Trench with 18" Exfiltration Pipe:

$$\begin{aligned} \frac{\text{Vol. (CF)}}{\text{LF}} &= (\text{porosity (\#57 stone)} * (\text{Area of Trench} - \text{O.D. Area of Pipe}) + \text{I.D. Area of Pipe}) \\ & * 1ft = (0.4(15.3 - 2.5) + 1.8) * 1 = 6.9 ft^3 \end{aligned}$$

Volume of Trench with 24" Exfiltration Pipe:

$$\begin{aligned} \frac{\text{Vol. (CF)}}{\text{LF}} &= (\text{porosity (\#57 stone)} * (\text{Area of Trench} - \text{O.D. Area of Pipe}) + \text{I.D. Area of Pipe}) \\ & * 1ft = (0.4(19.0 - 4.3) + 3.2) * 1 = 9.1 ft^3 \end{aligned}$$

BMP TRAINS INPUT AND SUMMARY REPORT

BMPTRAINS NUTRIENT ANALYSIS

INPUT

Watershed Characteristics Worksheet Version: 2.0.1

Add Catchment **Catchment 1**

Current Catchment Number (use 1 if single catchment): 1

Land Use Catchment Name: **Catchment 1**

Pre: SJRWMD Apopka Open Space/Recreation/Fallow Crop: TN=1. ▾

Post: SJRWMD Apopka Open Space/Recreation/Fallow Crop: TN=1. ▾

Total Pre-Development Catchment Area (ac): 10.71

Total Post-Development Catchment Area (ac): 10.71

Pre-Development Non DCIA Curve Number: 80

Pre-Development DCIA Percentage (0 - 100%): 0.0

Post-Development Non DCIA Curve Number: 80

Post-Development DCIA Percentage (0 - 100%): 6.0

Wet Pond Area (No loading from this area, ac): 0.00

Concentrations used in Analysis

	Pre:	Post:
EMC(N) mg/l	1.100	1.100
EMC(P) mg/l	0.050	0.050
Annual C	0.13	0.1718
Runoff (ac-ft/yr)	6.265	8.280
N Loading (kg/yr)	8.498	11.230
P Loading (kg/yr)	0.386	0.510

Report

Calculate

Cancel

Back

Select Treatment Options for individual performance, not in series or in multiple catchments. Analysis: Net Improvement Required Removal N: 24% P: 24%

Catchment 1

Treatment Options

Retention Basin

Greenroof

Wet Detention

Rainwater Harvesting

Exfiltration Trench

Vegetated Buffer

Permeable Pavement

Filter or Vegetated Filter Strip

Stormwater Harvesting

Rain Garden

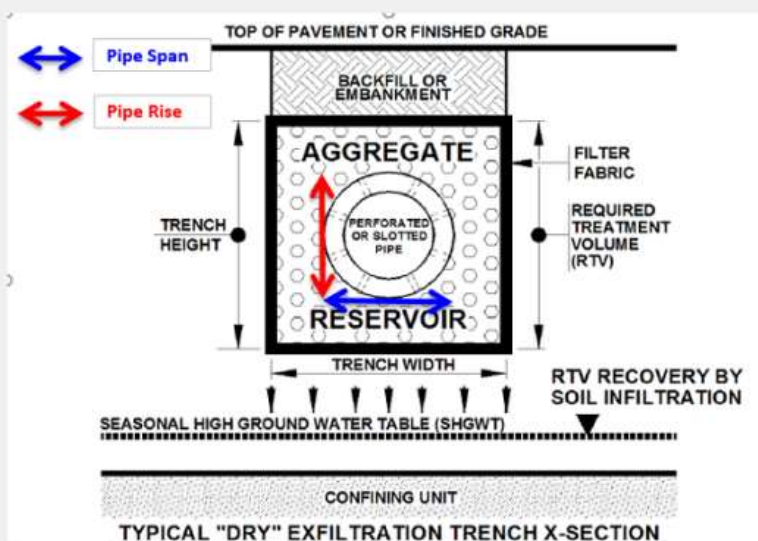
Surf Discharge Filtration

Tree Well

Swale

User Defined

BMPs in Series



Tools

Reset All

Catchments

Cost Report

Back

Pipe Span (in):

Trench Width (ft):

Pipe Rise (in):

Trench Depth (ft):

Pipe Length (ft):

Trench Length (ft):

Aggregate Void Ratio:

Project: Veterans Park

Date: 11/12/2020

Exfiltration Trench Design

Pipe Span (in)	18.0
Pipe Rise (in)	18.0
Pipe Length (ft)	3,385.0
Trench Width (ft)	3.5
Trench Depth (ft)	3.0
Trench Length (ft)	3,385.0
Aggregate Void Ratio (fraction)	0.35
Storage Volume (Ac-ft)	0.37
Retention Depth (in over CA)	0.420

Watershed Characteristics

Catchment Area (acres) 10.71

Help

Calculate

Cost

Print

Plot

Copy

Back

Complete Report (not including cost)

Project: Veterans Park

Date: 11/12/2020 1:38:38 PM

Site and Catchment Information

Analysis: Net Improvement

Catchment Name	Catchment 1
Rainfall Zone	Florida Zone 4
Annual Mean Rainfall	54.00

Pre-Condition Landuse Information

Landuse	SJRWMD Apopka Open Space/Recreation/Fallow Crop: TN=1.100 TP=0.050
Area (acres)	10.71
Rational Coefficient (0-1)	0.13
Non DCIA Curve Number	80.00
DCIA Percent (0-100)	0.00
Nitrogen EMC (mg/l)	1.100
Phosphorus EMC (mg/l)	0.050
Runoff Volume (ac-ft/yr)	6.265
Nitrogen Loading (kg/yr)	8.498
Phosphorus Loading (kg/yr)	0.386

Post-Condition Landuse Information

Landuse	SJRWMD Apopka Open Space/Recreation/Fallow Crop: TN=1.100 TP=0.050
Area (acres)	10.71
Rational Coefficient (0-1)	0.17
Non DCIA Curve Number	80.00
DCIA Percent (0-100)	6.00
Wet Pond Area (ac)	0.00
Nitrogen EMC (mg/l)	1.100
Phosphorus EMC (mg/l)	0.050
Runoff Volume (ac-ft/yr)	8.280
Nitrogen Loading (kg/yr)	11.230
Phosphorus Loading (kg/yr)	0.510

Catchment Number: 1 Name: Catchment 1

Project: Veterans Park

Date: 11/12/2020

Exfiltration Trench Design

Pipe Span (in)	18.0
Pipe Rise (in)	18.0
Pipe Length (ft)	3,385.0
Trench Width (ft)	3.5
Trench Depth (ft)	3.0
Trench Length (ft)	3,385.0
Aggregate Void Ratio (fraction)	0.35
Storage Volume (Ac-ft)	0.37
Retention Depth (in over CA)	0.420

Watershed Characteristics

Catchment Area (acres)	10.71
Contributing Area (acres)	10.710
Non-DCIA Curve Number	80.00
DCIA Percent	6.00
Rainfall Zone	Florida Zone 4
Rainfall (in)	54.00

Surface Water Discharge

Required TN Treatment Efficiency (%)	24
Provided TN Treatment Efficiency (%)	51
Required TP Treatment Efficiency (%)	24
Provided TP Treatment Efficiency (%)	51

Media Mix Information

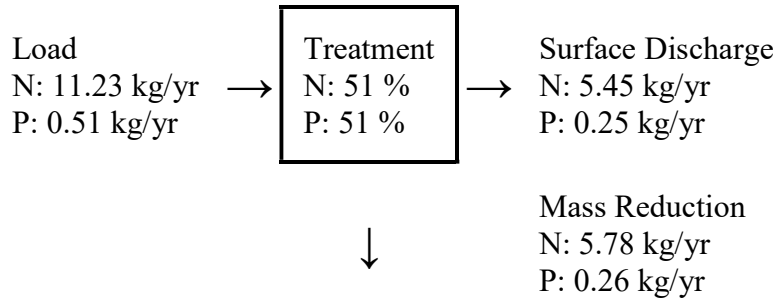
Type of Media Mix	Not Specified
Media N Reduction (%)	
Media P Reduction (%)	

Groundwater Discharge (Stand-Alone)

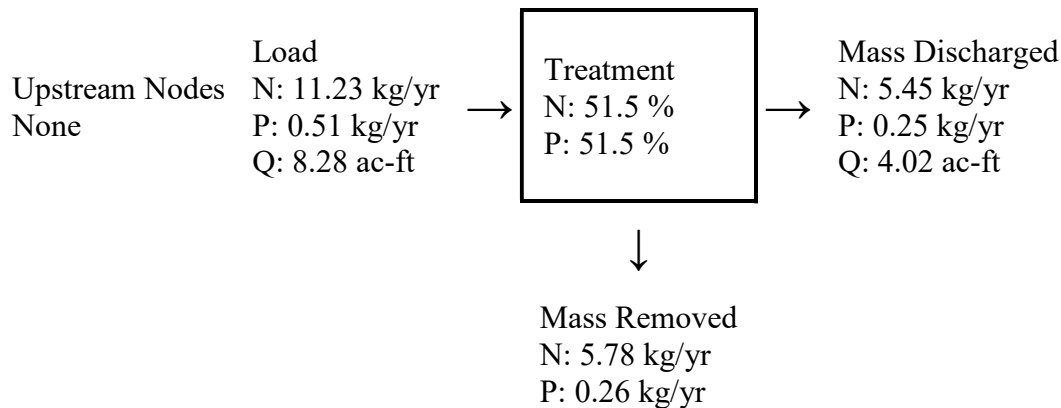
Treatment Rate (MG/yr)	0.000
------------------------	-------

TN Mass Load (kg/yr) 5.783
TN Concentration (mg/L) 0.000
TP Mass Load (kg/yr) 0.263
TP Concentration (mg/L) 0.000

Load Diagram for Exfiltration Trench (stand-alone)



Load Diagram for Exfiltration (As Used In Routing)



Summary Treatment Report Version: 2.0.1

Project: Veterans Park

Date:11/12/2020

Analysis Type: Net Improvement

BMP Types:

Catchment 1 - Exfiltration
Trench

Routing Summary

Catchment 1 Routed to Outlet

Total nitrogen target removal met? YES
Total phosphorus target removal met? YES

Summary Report

Nitrogen

Surface Water Discharge

Total N pre load	8.5 kg/yr	
Total N post load	11.23 kg/yr	
Target N load reduction	24 %	
Target N discharge load	8.5 kg/yr	
Percent N load reduction	51 %	
Provided N discharge load	5.45 kg/yr	12.01 lb/yr
Provided N load removed	5.78 kg/yr	12.75 lb/yr

Phosphorus

Surface Water Discharge

Total P pre load	.39 kg/yr	
Total P post load	.51 kg/yr	
Target P load reduction	24 %	
Target P discharge load	.39 kg/yr	
Percent P load reduction	51 %	
Provided P discharge load	.25 kg/yr	.55 lb/yr
Provided P load removed	.26 kg/yr	.58 lb/yr

From Pre-Condition Loads

Existing N Discharge	8.5 (kg/yr)
Existing P Discharge	.386 (kg/yr)

APPENDIX C: ICPR PROPOSED CONDITIONS MODEL

INPUT REPORT

Manual Basin: Basin 1

Scenario: Scenario1
 Node: B1
 Hydrograph Method: NRCS Unit Hydrograph
 Infiltration Method: Curve Number
 Time of Concentration: 10.0000 min
 Max Allowable Q: 999999.00 cfs
 Time Shift: 0.0000 hr
 Unit Hydrograph: UH256
 Peaking Factor: 256.0
 Area: 0.5100 ac

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name
0.3000	Pavement		
0.2100	Open Space		

Comment:

Manual Basin: Basin 2

Scenario: Scenario1
 Node: B2
 Hydrograph Method: NRCS Unit Hydrograph
 Infiltration Method: Curve Number
 Time of Concentration: 10.0000 min
 Max Allowable Q: 999999.00 cfs
 Time Shift: 0.0000 hr
 Unit Hydrograph: UH256
 Peaking Factor: 256.0
 Area: 4.5900 ac

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name
0.1000	Building		
1.7400	Pavement		
2.7500	Open Space		

Comment:

Manual Basin: Basin 3

Scenario: Scenario1
 Node: B3
 Hydrograph Method: NRCS Unit Hydrograph
 Infiltration Method: Curve Number
 Time of Concentration: 10.0000 min
 Max Allowable Q: 999999.00 cfs
 Time Shift: 0.0000 hr
 Unit Hydrograph: UH256
 Peaking Factor: 256.0

Area: 3.3000 ac

Area [ac]	Land Cover Zone	Soil Zone	Rainfall Name
1.0200	Pavement		
2.2500	Open Space		
0.0300	Building		

Comment:

Node: B1

Scenario: Scenario1
 Type: Stage/Volume
 Base Flow: 0.00 cfs
 Initial Stage: 1.00 ft
 Warning Stage: 4.33 ft

Stage [ft]	Volume [ac-ft]	Volume [ft3]
1.00	0.00	0
1.50	0.00	0
2.00	0.01	436
2.50	0.01	436
3.00	0.02	871
3.50	0.02	871
4.00	0.03	1307
4.50	0.08	3485
5.00	0.22	9583
5.50	0.42	18295
6.00	0.66	28750

Comment: Rim Elev: 4.33
 Sump Elev: 1.00
 Desc: FDOT TYPE D INLET

Node: B2

Scenario: Scenario1
 Type: Stage/Volume
 Base Flow: 0.00 cfs
 Initial Stage: 1.00 ft
 Warning Stage: 5.21 ft

Stage [ft]	Volume [ac-ft]	Volume [ft3]
1.00	0.00	0
1.50	0.08	3485
2.00	0.17	7405
2.50	0.25	10890
3.00	0.33	14375

Stage [ft]	Volume [ac-ft]	Volume [ft3]
3.50	0.41	17860
4.00	0.50	21780
4.50	0.83	36155
5.00	1.73	75359
5.50	2.97	129373
6.00	4.43	192971
6.50	6.11	266152
7.00	8.02	349351
7.50	10.04	437342
8.00	12.17	530125

Comment: Rim Elev: 5.21
 Sump Elev: 1.00
 Desc: FDOT TYPE D INLET

Node: B3

Scenario: Scenario1
 Type: Stage/Volume
 Base Flow: 0.00 cfs
 Initial Stage: 1.00 ft
 Warning Stage: 5.00 ft

Stage [ft]	Volume [ac-ft]	Volume [ft3]
1.00	0.00	0
1.50	0.04	1742
2.00	0.08	3485
2.50	0.12	5227
3.00	0.16	6970
3.50	0.21	9148
4.00	0.25	10890
4.50	0.33	14375
5.00	0.57	24829
5.50	1.06	46174
6.00	1.96	85378
6.50	3.19	138956
7.00	4.58	199505
7.50	6.05	263538
8.00	7.60	331056

Comment: Rim Elev: 5.00
 Sump Elev: 1.00
 Desc: FDOT TYPE D INLET

Node: Tail Water

Scenario: Scenario1
 Type: Time/Stage
 Base Flow: 0.00 cfs
 Initial Stage: 1.00 ft
 Warning Stage: 999.00 ft
 Boundary Stage:

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	1.00
0	0	0	100.0000	1.00

Comment:

Drop Structure Link: CS-1		Upstream Pipe	Downstream Pipe
Scenario:	Scenario1	Invert: 1.00 ft	Invert: 1.00 ft
From Node:	B1	Manning's N: 0.0120	Manning's N: 0.0120
To Node:	Tail Water	Geometry: Circular	Geometry: Circular
Link Count:	1	Max Depth: 2.00 ft	Max Depth: 2.00 ft
Flow Direction:	Both	Bottom Clip	
Solution:	Combine	Default: 0.00 ft	Default: 0.00 ft
Increments:	0	Op Table:	Op Table:
Pipe Count:	1	Ref Node:	Ref Node:
Damping:	0.0000 ft	Manning's N: 0.0000	Manning's N: 0.0000
Length:	10.00 ft	Top Clip	
FHWA Code:	0	Default: 0.00 ft	Default: 0.00 ft
Entr Loss Coef:	0.50	Op Table:	Op Table:
Exit Loss Coef:	1.00	Ref Node:	Ref Node:
Bend Loss Coef:	0.00	Manning's N: 0.0000	Manning's N: 0.0000
Bend Location:	0.00 dec		
Energy Switch:	Energy		

Pipe Comment:

Weir Component		
Weir:	1	Bottom Clip
Weir Count:	1	Default: 0.00 ft
Weir Flow Direction:	Both	Op Table:
Damping:	0.0000 ft	Ref Node:
Weir Type:	Sharp Crested Vertical	Top Clip
Geometry Type:	Rectangular	Default: 0.00 ft
Invert:	4.00 ft	Op Table:
Control Elevation:	4.00 ft	Ref Node:
Max Depth:	999.00 ft	Discharge Coefficients
Max Width:	4.08 ft	Weir Default: 3.200
Fillet:	0.00 ft	Weir Table:
		Orifice Default: 0.600
		Orifice Table:

Weir Comment:

Weir Component	
Weir: 2	Bottom Clip
Weir Count: 1	Default: 0.00 ft
Weir Flow Direction: Both	Op Table:
Damping: 0.0000 ft	Ref Node:
Weir Type: Sharp Crested Vertical	Top Clip
Geometry Type: Circular	Default: 0.00 ft
Invert: 1.00 ft	Op Table:
Control Elevation: 1.00 ft	Ref Node:
Max Depth: 0.25 ft	Discharge Coefficients
	Weir Default: 3.200
	Weir Table:
	Orifice Default: 0.600
	Orifice Table:

Weir Comment:

Drop Structure Comment:

Drop Structure Link: CS-2		Upstream Pipe	Downstream Pipe
Scenario: Scenario1		Invert: 1.00 ft	Invert: 1.00 ft
From Node: B2		Manning's N: 0.0120	Manning's N: 0.0120
To Node: Tail Water		Geometry: Circular	Geometry: Circular
Link Count: 1		Max Depth: 2.00 ft	Max Depth: 2.00 ft
Flow Direction: Both		Bottom Clip	
Solution: Combine		Default: 0.00 ft	Default: 0.00 ft
Increments: 0		Op Table:	Op Table:
Pipe Count: 1		Ref Node:	Ref Node:
Damping: 0.0000 ft		Manning's N: 0.0000	Manning's N: 0.0000
Length: 10.00 ft		Top Clip	
FHWA Code: 0		Default: 0.00 ft	Default: 0.00 ft
Entr Loss Coef: 0.50		Op Table:	Op Table:
Exit Loss Coef: 1.00		Ref Node:	Ref Node:
Bend Loss Coef: 0.00		Manning's N: 0.0000	Manning's N: 0.0000
Bend Location: 0.00 dec			
Energy Switch: Energy			

Pipe Comment:

Weir Component	
Weir: 1	Bottom Clip
Weir Count: 1	Default: 0.00 ft
Weir Flow Direction: Both	Op Table:
Damping: 0.0000 ft	Ref Node:
Weir Type: Sharp Crested Vertical	Top Clip
Geometry Type: Rectangular	Default: 0.00 ft
Invert: 4.00 ft	Op Table:
Control Elevation: 4.00 ft	Ref Node:

Max Depth: 999.00 ft
 Max Width: 4.08 ft
 Fillet: 0.00 ft

Discharge Coefficients
 Weir Default: 3.200
 Weir Table:
 Orifice Default: 0.600
 Orifice Table:

Weir Comment:

Weir Component

Weir: 2
 Weir Count: 1
 Weir Flow Direction: Both
 Damping: 0.0000 ft
 Weir Type: Sharp Crested Vertical
 Geometry Type: Circular
 Invert: 1.00 ft
 Control Elevation: 1.00 ft
 Max Depth: 0.25 ft

Bottom Clip

Default: 0.00 ft
 Op Table:
 Ref Node:

Top Clip

Default: 0.00 ft
 Op Table:
 Ref Node:

Discharge Coefficients

Weir Default: 3.200
 Weir Table:
 Orifice Default: 0.600
 Orifice Table:

Weir Comment:

Drop Structure Comment:

Drop Structure Link: CS-3

Scenario: Scenario1
 From Node: B3
 To Node: Tail Water
 Link Count: 1
 Flow Direction: Both
 Solution: Combine
 Increments: 0
 Pipe Count: 1
 Damping: 0.0000 ft
 Length: 10.00 ft
 FHWA Code: 0
 Entr Loss Coef: 0.50
 Exit Loss Coef: 1.00
 Bend Loss Coef: 0.00
 Bend Location: 0.00 dec
 Energy Switch: Energy

Upstream Pipe

Invert: 1.00 ft
 Manning's N: 0.0120
 Geometry: Circular
 Max Depth: 2.00 ft

Downstream Pipe

Invert: 1.00 ft
 Manning's N: 0.0120
 Geometry: Circular
 Max Depth: 2.00 ft

Bottom Clip

Default: 0.00 ft
 Op Table:
 Ref Node:
 Manning's N: 0.0000

Default: 0.00 ft
 Op Table:
 Ref Node:
 Manning's N: 0.0000

Top Clip

Default: 0.00 ft
 Op Table:
 Ref Node:
 Manning's N: 0.0000

Default: 0.00 ft
 Op Table:
 Ref Node:
 Manning's N: 0.0000

Pipe Comment:

Weir Component

Weir: 1

Bottom Clip

Weir Count: 1
 Weir Flow Direction: Both
 Damping: 0.0000 ft
 Weir Type: Sharp Crested Vertical
 Geometry Type: Rectangular
 Invert: 4.00 ft
 Control Elevation: 4.00 ft
 Max Depth: 999.00 ft
 Max Width: 4.08 ft
 Fillet: 0.00 ft

Default: 0.00 ft

Op Table:

Ref Node:

Top Clip

Default: 0.00 ft

Op Table:

Ref Node:

Discharge Coefficients

Weir Default: 3.200

Weir Table:

Orifice Default: 0.600

Orifice Table:

Weir Comment:

Weir Component

Weir: 2
 Weir Count: 1
 Weir Flow Direction: Both
 Damping: 0.0000 ft
 Weir Type: Sharp Crested Vertical
 Geometry Type: Circular
 Invert: 1.00 ft
 Control Elevation: 1.00 ft
 Max Depth: 0.25 ft

Bottom Clip

Default: 0.00 ft

Op Table:

Ref Node:

Top Clip

Default: 0.00 ft

Op Table:

Ref Node:

Discharge Coefficients

Weir Default: 3.200

Weir Table:

Orifice Default: 0.600

Orifice Table:

Weir Comment:

Drop Structure Comment:

Simulation: 100yr, 72hr

Scenario: Scenario1
 Run Date/Time: 10/21/2020 4:03:58 PM
 Program Version: ICPR4 4.07.04

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	120.0000

Hydrology [sec]	Surface Hydraulics [sec]
-----------------	--------------------------

Min Calculation Time: 60.0000 0.1000
 Max Calculation Time: 30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph
Folder:

Lookup Tables

Boundary Stage Set:
 Extern Hydrograph Set:
 Curve Number Set: Curve Number Set 1

 Green-Ampt Set:
 Vertical Layers Set:
 Impervious Set: Impervious Set

Tolerances & Options

Time Marching: SAOR	IA Recovery Time: 24.0000 hr
Max Iterations: 6	
Over-Relax Weight 0.5 dec	
Fact:	
dZ Tolerance: 0.0010 ft	Smp/Man Basin Rain Global
	Opt:
Max dZ: 1.0000 ft	Rainfall Name: ~SFWMD-72
Link Optimizer Tol: 0.0001 ft	Rainfall Amount: 15.80 in
	Storm Duration: 72.0000 hr
Edge Length Option: Automatic	
	Dflt Damping (1D): 0.0050 ft
	Min Node Srf Area 100 ft2
	(1D):
	Energy Switch (1D): Energy

Comment:

Simulation: 100yr, 72hr OD

Scenario: Scenario1
 Run Date/Time: 10/16/2020 9:40:58 AM
 Program Version: ICPR4 4.07.04

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	120.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph
Folder:

Lookup Tables

Boundary Stage Set:
 Extern Hydrograph Set:
 Curve Number Set: Curve Number Set 1

Green-Ampt Set:
 Vertical Layers Set:
 Impervious Set: Impervious Set

Tolerances & Options

Time Marching: SAOR
 Max Iterations: 6
 Over-Relax Weight 0.5 dec
 Fact:
 dZ Tolerance: 0.0010 ft

IA Recovery Time: 24.0000 hr

Smp/Man Basin Rain Global

Max dZ: 1.0000 ft
 Link Optimizer Tol: 0.0001 ft
 Edge Length Option: Automatic

Opt:

Rainfall Name: ~SFWMD-72
 Rainfall Amount: 15.80 in
 Storm Duration: 72.0000 hr

Dflt Damping (1D): 0.0050 ft
 Min Node Srf Area (1D): 100 ft2
 Energy Switch (1D): Energy

Comment:

Simulation: 10yr, 24hr

Scenario: Scenario1
 Run Date/Time: 10/21/2020 4:04:39 PM
 Program Version: ICPR4 4.07.04

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	60.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources	Lookup Tables
Rainfall Folder:	Boundary Stage Set:
Unit Hydrograph Folder:	Extern Hydrograph Set:
	Curve Number Set: Curve Number Set 1
	Green-Ampt Set:
	Vertical Layers Set:
	Impervious Set: Impervious Set

Tolerances & Options			
Time Marching:	SAOR	IA Recovery Time:	24.0000 hr
Max Iterations:	6		
Over-Relax Weight	0.5 dec		
Fact:			
dZ Tolerance:	0.0010 ft	Smp/Man Basin Rain	Global
		Opt:	
Max dZ:	1.0000 ft	Rainfall Name:	~FLMOD
Link Optimizer Tol:	0.0001 ft	Rainfall Amount:	7.20 in
Edge Length Option:	Automatic	Storm Duration:	24.0000 hr
		Dflt Damping (1D):	0.0050 ft
		Min Node Srf Area	100 ft2
		(1D):	
		Energy Switch (1D):	Energy

Comment:

Simulation: 25yr,72hr

Scenario: Scenario1
Run Date/Time: 10/21/2020 4:05:02 PM
Program Version: ICPR4 4.07.04

General				
Run Mode:	Normal			
	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	120.0000
	Hydrology [sec]	Surface Hydraulics [sec]		
Min Calculation Time:	60.0000	0.1000		
Max Calculation Time:		30.0000		

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph
Folder:

Lookup Tables

Boundary Stage Set:
 Extern Hydrograph Set:
 Curve Number Set: Curve Number Set 1

 Green-Ampt Set:
 Vertical Layers Set:
 Impervious Set: Impervious Set

Tolerances & Options

Time Marching: SAOR	IA Recovery Time: 24.0000 hr
Max Iterations: 6	
Over-Relax Weight: 0.5 dec	
Fact:	
dZ Tolerance: 0.0010 ft	Smp/Man Basin Rain Opt: Global
Max dZ: 1.0000 ft	Rainfall Name: ~SFWMD-72
Link Optimizer Tol: 0.0001 ft	Rainfall Amount: 11.70 in
	Storm Duration: 72.0000 hr
Edge Length Option: Automatic	Dflt Damping (1D): 0.0050 ft
	Min Node Srf Area (1D): 100 ft2
	Energy Switch (1D): Energy

Comment:

Simulation: 5yr, 24hr

Scenario: Scenario1

Run Date/Time: 10/21/2020 4:05:48 PM
 Program Version: ICPR4 4.07.04

General

Run Mode: Normal

	Year	Month	Day	Hour [hr]
Start Time:	0	0	0	0.0000
End Time:	0	0	0	60.0000

	Hydrology [sec]	Surface Hydraulics [sec]
Min Calculation Time:	60.0000	0.1000
Max Calculation Time:		30.0000

Output Time Increments

Hydrology

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Surface Hydraulics

Year	Month	Day	Hour [hr]	Time Increment [min]
0	0	0	0.0000	15.0000

Restart File

Save Restart: False

Resources & Lookup Tables

Resources

Rainfall Folder:

Unit Hydrograph
Folder:

Lookup Tables

Boundary Stage Set:
 Extern Hydrograph Set:
 Curve Number Set: Curve Number Set 1

 Green-Ampt Set:
 Vertical Layers Set:
 Impervious Set: Impervious Set

Tolerances & Options

Time Marching: SAOR
 Max Iterations: 6
 Over-Relax Weight 0.5 dec
 Fact:
 dZ Tolerance: 0.0010 ft

 Max dZ: 1.0000 ft

IA Recovery Time: 24.0000 hr

 Smp/Man Basin Rain Global
 Opt:

Link Optimizer Tol: 0.0001 ft
Edge Length Option: Automatic

Rainfall Name: ~FLMOD
Rainfall Amount: 6.10 in
Storm Duration: 24.0000 hr

Dflt Damping (1D): 0.0050 ft
Min Node Srf Area 100 ft2
(1D):
Energy Switch (1D): Energy

Comment:

NODE MAX CONDITIONS REPORT

Node Max Conditions w/ Times [Scenario1]

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]	Time to Max Stage [hr]	Time to Min/Max Delta Stage [hr]	Time to Max Total Inflow [hr]	Time to Max Total Outflow [hr]
B1	100yr, 72hr	4.33	4.08	0.0010	1.41	0.69	3538	60.3285	59.7986	60.0168	60.3217
B2	100yr, 72hr	5.21	4.66	0.0010	18.40	7.41	66620	60.4438	59.1263	60.0168	60.4345
B3	100yr, 72hr	5.00	4.86	0.0010	15.05	10.76	26858	60.1673	58.1019	60.0168	60.1630
Tail Water	100yr, 72hr	999.00	1.00	0.0000	18.38	0.00	0	0.0000	0.0000	60.2441	0.0000
Tail Water	100yr, 72hr OD	999.00	1.00	0.0000	0.00	0.00	0	0.0000	0.0000	0.0000	0.0000
B1	10yr, 24hr	4.33	3.24	-0.0010	0.72	0.33	436	12.5137	14.2496	12.0500	12.5053
B2	10yr, 24hr	5.21	4.16	-0.0010	9.39	1.19	29414	13.1995	34.1209	12.0500	13.1507
B3	10yr, 24hr	5.00	4.43	0.0010	7.68	4.08	12777	12.4335	11.9923	12.0500	12.4314
Tail Water	10yr, 24hr	999.00	1.00	0.0000	4.82	0.00	0	0.0000	0.0000	12.5584	0.0000
B1	25yr, 72 hr	4.33	3.85	0.0010	1.01	0.37	1965	60.5032	59.8465	60.0167	60.4972
B2	25yr, 72 hr	5.21	4.46	-0.0010	13.25	4.37	50482	60.5627	82.3278	60.0167	60.5434
B3	25yr, 72 hr	5.00	4.69	-0.0010	10.84	7.85	20807	60.1638	77.3834	60.0167	60.1576
Tail Water	25yr, 72 hr	999.00	1.00	0.0000	11.95	0.00	0	0.0000	0.0000	60.2445	0.0000
B1	5yr, 24hr	4.33	2.71	-0.0010	0.57	0.28	436	12.4825	13.7229	12.0500	12.4755
B2	5yr, 24hr	5.21	4.02	0.0010	7.49	0.43	20007	15.6166	12.3690	12.0500	15.5832
B3	5yr, 24hr	5.00	4.30	0.0010	6.13	2.52	10466	12.5704	10.0760	12.0500	12.5671
Tail Water	5yr, 24hr	999.00	1.00	0.0000	3.16	0.00	0	0.0000	0.0000	12.5809	0.0000

Node Max Conditions w/ Times [Scenario1]

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage [ft]	Max Total Inflow [cfs]	Max Total Outflow [cfs]	Max Surface Area [ft2]	Time to Max Stage [hr]	Time to Min/Max Delta Stage [hr]	Time to Max Total Inflow [hr]	Time to Max Total Outflow [hr]
B1	100yr, 72hr OD	4.33	5.00	0.0010	1.40	0.00	14825	72.9891	12.0861	60.0161	0.0000
B2	100yr, 72hr OD	5.21	5.50	0.0010	18.40	0.00	117400	72.9891	60.2376	60.0161	0.0000
B3	100yr, 72hr OD	5.00	6.19	0.0010	15.05	0.00	100866	72.9891	28.1525	60.0161	0.0000
Tail Water	100yr, 72hr OD	999.00	1.00	0.0000	0.00	0.00	0	0.0000	0.0000	0.0000	0.0000

NODE TIME SERIES REPORT

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	B1	0.0000	1.00	4.33
Scenario1	25yr,72hr	B1	0.2511	1.00	4.33
Scenario1	25yr,72hr	B1	0.5050	1.00	4.33
Scenario1	25yr,72hr	B1	0.7527	1.00	4.33
Scenario1	25yr,72hr	B1	1.0027	1.00	4.33
Scenario1	25yr,72hr	B1	1.2527	1.00	4.33
Scenario1	25yr,72hr	B1	1.5027	1.00	4.33
Scenario1	25yr,72hr	B1	1.7527	1.00	4.33
Scenario1	25yr,72hr	B1	2.0027	1.00	4.33
Scenario1	25yr,72hr	B1	2.2527	1.00	4.33
Scenario1	25yr,72hr	B1	2.5027	1.00	4.33
Scenario1	25yr,72hr	B1	2.7527	1.00	4.33
Scenario1	25yr,72hr	B1	3.0027	1.00	4.33
Scenario1	25yr,72hr	B1	3.2527	1.00	4.33
Scenario1	25yr,72hr	B1	3.5027	1.00	4.33
Scenario1	25yr,72hr	B1	3.7527	1.00	4.33
Scenario1	25yr,72hr	B1	4.0027	1.00	4.33
Scenario1	25yr,72hr	B1	4.2527	1.00	4.33
Scenario1	25yr,72hr	B1	4.5027	1.00	4.33
Scenario1	25yr,72hr	B1	4.7527	1.00	4.33
Scenario1	25yr,72hr	B1	5.0027	1.00	4.33
Scenario1	25yr,72hr	B1	5.2527	1.00	4.33
Scenario1	25yr,72hr	B1	5.5027	1.00	4.33
Scenario1	25yr,72hr	B1	5.7527	1.00	4.33
Scenario1	25yr,72hr	B1	6.0027	1.00	4.33
Scenario1	25yr,72hr	B1	6.2527	1.00	4.33
Scenario1	25yr,72hr	B1	6.5027	1.00	4.33
Scenario1	25yr,72hr	B1	6.7527	1.00	4.33
Scenario1	25yr,72hr	B1	7.0027	1.00	4.33
Scenario1	25yr,72hr	B1	7.2527	1.00	4.33
Scenario1	25yr,72hr	B1	7.5027	1.00	4.33
Scenario1	25yr,72hr	B1	7.7527	1.00	4.33
Scenario1	25yr,72hr	B1	8.0027	1.00	4.33
Scenario1	25yr,72hr	B1	8.2527	1.00	4.33
Scenario1	25yr,72hr	B1	8.5027	1.00	4.33
Scenario1	25yr,72hr	B1	8.7527	1.00	4.33
Scenario1	25yr,72hr	B1	9.0027	1.00	4.33
Scenario1	25yr,72hr	B1	9.2527	1.00	4.33
Scenario1	25yr,72hr	B1	9.5027	1.00	4.33
Scenario1	25yr,72hr	B1	9.7527	1.00	4.33
Scenario1	25yr,72hr	B1	10.0027	1.00	4.33
Scenario1	25yr,72hr	B1	10.2527	1.00	4.33

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	B1	10.5027	1.00	4.33
Scenario1	25yr,72hr	B1	10.7527	1.01	4.33
Scenario1	25yr,72hr	B1	11.0027	1.01	4.33
Scenario1	25yr,72hr	B1	11.2527	1.01	4.33
Scenario1	25yr,72hr	B1	11.5027	1.02	4.33
Scenario1	25yr,72hr	B1	11.7527	1.02	4.33
Scenario1	25yr,72hr	B1	12.0027	1.02	4.33
Scenario1	25yr,72hr	B1	12.2527	1.02	4.33
Scenario1	25yr,72hr	B1	12.5027	1.03	4.33
Scenario1	25yr,72hr	B1	12.7527	1.03	4.33
Scenario1	25yr,72hr	B1	13.0027	1.03	4.33
Scenario1	25yr,72hr	B1	13.2527	1.03	4.33
Scenario1	25yr,72hr	B1	13.5027	1.03	4.33
Scenario1	25yr,72hr	B1	13.7527	1.04	4.33
Scenario1	25yr,72hr	B1	14.0027	1.04	4.33
Scenario1	25yr,72hr	B1	14.2527	1.04	4.33
Scenario1	25yr,72hr	B1	14.5027	1.04	4.33
Scenario1	25yr,72hr	B1	14.7527	1.04	4.33
Scenario1	25yr,72hr	B1	15.0027	1.04	4.33
Scenario1	25yr,72hr	B1	15.2527	1.04	4.33
Scenario1	25yr,72hr	B1	15.5027	1.04	4.33
Scenario1	25yr,72hr	B1	15.7527	1.04	4.33
Scenario1	25yr,72hr	B1	16.0027	1.04	4.33
Scenario1	25yr,72hr	B1	16.2527	1.04	4.33
Scenario1	25yr,72hr	B1	16.5027	1.05	4.33
Scenario1	25yr,72hr	B1	16.7527	1.05	4.33
Scenario1	25yr,72hr	B1	17.0027	1.05	4.33
Scenario1	25yr,72hr	B1	17.2527	1.05	4.33
Scenario1	25yr,72hr	B1	17.5027	1.05	4.33
Scenario1	25yr,72hr	B1	17.7527	1.05	4.33
Scenario1	25yr,72hr	B1	18.0027	1.05	4.33
Scenario1	25yr,72hr	B1	18.2527	1.05	4.33
Scenario1	25yr,72hr	B1	18.5027	1.05	4.33
Scenario1	25yr,72hr	B1	18.7527	1.05	4.33
Scenario1	25yr,72hr	B1	19.0027	1.05	4.33
Scenario1	25yr,72hr	B1	19.2527	1.05	4.33
Scenario1	25yr,72hr	B1	19.5027	1.05	4.33
Scenario1	25yr,72hr	B1	19.7527	1.05	4.33
Scenario1	25yr,72hr	B1	20.0027	1.05	4.33
Scenario1	25yr,72hr	B1	20.2527	1.05	4.33
Scenario1	25yr,72hr	B1	20.5027	1.05	4.33
Scenario1	25yr,72hr	B1	20.7527	1.06	4.33

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	B1	21.0027	1.06	4.33
Scenario1	25yr,72hr	B1	21.2527	1.06	4.33
Scenario1	25yr,72hr	B1	21.5027	1.06	4.33
Scenario1	25yr,72hr	B1	21.7527	1.06	4.33
Scenario1	25yr,72hr	B1	22.0027	1.06	4.33
Scenario1	25yr,72hr	B1	22.2527	1.06	4.33
Scenario1	25yr,72hr	B1	22.5027	1.06	4.33
Scenario1	25yr,72hr	B1	22.7527	1.06	4.33
Scenario1	25yr,72hr	B1	23.0027	1.06	4.33
Scenario1	25yr,72hr	B1	23.2527	1.06	4.33
Scenario1	25yr,72hr	B1	23.5027	1.06	4.33
Scenario1	25yr,72hr	B1	23.7527	1.06	4.33
Scenario1	25yr,72hr	B1	24.0027	1.06	4.33
Scenario1	25yr,72hr	B1	24.2527	1.06	4.33
Scenario1	25yr,72hr	B1	24.5027	1.07	4.33
Scenario1	25yr,72hr	B1	24.7527	1.07	4.33
Scenario1	25yr,72hr	B1	25.0027	1.07	4.33
Scenario1	25yr,72hr	B1	25.2527	1.07	4.33
Scenario1	25yr,72hr	B1	25.5027	1.08	4.33
Scenario1	25yr,72hr	B1	25.7527	1.08	4.33
Scenario1	25yr,72hr	B1	26.0027	1.08	4.33
Scenario1	25yr,72hr	B1	26.2527	1.08	4.33
Scenario1	25yr,72hr	B1	26.5027	1.08	4.33
Scenario1	25yr,72hr	B1	26.7527	1.08	4.33
Scenario1	25yr,72hr	B1	27.0027	1.08	4.33
Scenario1	25yr,72hr	B1	27.2527	1.08	4.33
Scenario1	25yr,72hr	B1	27.5027	1.08	4.33
Scenario1	25yr,72hr	B1	27.7527	1.08	4.33
Scenario1	25yr,72hr	B1	28.0027	1.08	4.33
Scenario1	25yr,72hr	B1	28.2527	1.08	4.33
Scenario1	25yr,72hr	B1	28.5027	1.08	4.33
Scenario1	25yr,72hr	B1	28.7527	1.08	4.33
Scenario1	25yr,72hr	B1	29.0027	1.08	4.33
Scenario1	25yr,72hr	B1	29.2527	1.08	4.33
Scenario1	25yr,72hr	B1	29.5027	1.08	4.33
Scenario1	25yr,72hr	B1	29.7527	1.08	4.33
Scenario1	25yr,72hr	B1	30.0027	1.08	4.33
Scenario1	25yr,72hr	B1	30.2527	1.08	4.33
Scenario1	25yr,72hr	B1	30.5027	1.08	4.33
Scenario1	25yr,72hr	B1	30.7527	1.08	4.33
Scenario1	25yr,72hr	B1	31.0027	1.08	4.33
Scenario1	25yr,72hr	B1	31.2527	1.09	4.33

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	B1	31.5027	1.09	4.33
Scenario1	25yr,72hr	B1	31.7527	1.09	4.33
Scenario1	25yr,72hr	B1	32.0027	1.09	4.33
Scenario1	25yr,72hr	B1	32.2527	1.09	4.33
Scenario1	25yr,72hr	B1	32.5027	1.09	4.33
Scenario1	25yr,72hr	B1	32.7527	1.09	4.33
Scenario1	25yr,72hr	B1	33.0027	1.09	4.33
Scenario1	25yr,72hr	B1	33.2527	1.09	4.33
Scenario1	25yr,72hr	B1	33.5027	1.09	4.33
Scenario1	25yr,72hr	B1	33.7527	1.09	4.33
Scenario1	25yr,72hr	B1	34.0027	1.09	4.33
Scenario1	25yr,72hr	B1	34.2527	1.09	4.33
Scenario1	25yr,72hr	B1	34.5027	1.09	4.33
Scenario1	25yr,72hr	B1	34.7527	1.09	4.33
Scenario1	25yr,72hr	B1	35.0027	1.09	4.33
Scenario1	25yr,72hr	B1	35.2527	1.09	4.33
Scenario1	25yr,72hr	B1	35.5027	1.09	4.33
Scenario1	25yr,72hr	B1	35.7527	1.09	4.33
Scenario1	25yr,72hr	B1	36.0027	1.09	4.33
Scenario1	25yr,72hr	B1	36.2527	1.09	4.33
Scenario1	25yr,72hr	B1	36.5027	1.09	4.33
Scenario1	25yr,72hr	B1	36.7527	1.09	4.33
Scenario1	25yr,72hr	B1	37.0027	1.09	4.33
Scenario1	25yr,72hr	B1	37.2527	1.09	4.33
Scenario1	25yr,72hr	B1	37.5027	1.09	4.33
Scenario1	25yr,72hr	B1	37.7527	1.09	4.33
Scenario1	25yr,72hr	B1	38.0027	1.09	4.33
Scenario1	25yr,72hr	B1	38.2527	1.09	4.33
Scenario1	25yr,72hr	B1	38.5027	1.09	4.33
Scenario1	25yr,72hr	B1	38.7527	1.09	4.33
Scenario1	25yr,72hr	B1	39.0027	1.09	4.33
Scenario1	25yr,72hr	B1	39.2527	1.09	4.33
Scenario1	25yr,72hr	B1	39.5027	1.09	4.33
Scenario1	25yr,72hr	B1	39.7527	1.09	4.33
Scenario1	25yr,72hr	B1	40.0027	1.09	4.33
Scenario1	25yr,72hr	B1	40.2527	1.09	4.33
Scenario1	25yr,72hr	B1	40.5027	1.10	4.33
Scenario1	25yr,72hr	B1	40.7527	1.10	4.33
Scenario1	25yr,72hr	B1	41.0027	1.10	4.33
Scenario1	25yr,72hr	B1	41.2527	1.10	4.33
Scenario1	25yr,72hr	B1	41.5027	1.10	4.33
Scenario1	25yr,72hr	B1	41.7527	1.10	4.33

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	B1	42.0027	1.10	4.33
Scenario1	25yr,72hr	B1	42.2527	1.10	4.33
Scenario1	25yr,72hr	B1	42.5027	1.10	4.33
Scenario1	25yr,72hr	B1	42.7527	1.10	4.33
Scenario1	25yr,72hr	B1	43.0027	1.10	4.33
Scenario1	25yr,72hr	B1	43.2527	1.10	4.33
Scenario1	25yr,72hr	B1	43.5027	1.10	4.33
Scenario1	25yr,72hr	B1	43.7527	1.10	4.33
Scenario1	25yr,72hr	B1	44.0027	1.10	4.33
Scenario1	25yr,72hr	B1	44.2527	1.10	4.33
Scenario1	25yr,72hr	B1	44.5027	1.10	4.33
Scenario1	25yr,72hr	B1	44.7527	1.10	4.33
Scenario1	25yr,72hr	B1	45.0027	1.10	4.33
Scenario1	25yr,72hr	B1	45.2527	1.10	4.33
Scenario1	25yr,72hr	B1	45.5027	1.10	4.33
Scenario1	25yr,72hr	B1	45.7527	1.10	4.33
Scenario1	25yr,72hr	B1	46.0027	1.10	4.33
Scenario1	25yr,72hr	B1	46.2527	1.10	4.33
Scenario1	25yr,72hr	B1	46.5027	1.10	4.33
Scenario1	25yr,72hr	B1	46.7527	1.10	4.33
Scenario1	25yr,72hr	B1	47.0027	1.10	4.33
Scenario1	25yr,72hr	B1	47.2527	1.10	4.33
Scenario1	25yr,72hr	B1	47.5027	1.10	4.33
Scenario1	25yr,72hr	B1	47.7527	1.10	4.33
Scenario1	25yr,72hr	B1	48.0027	1.10	4.33
Scenario1	25yr,72hr	B1	48.2527	1.10	4.33
Scenario1	25yr,72hr	B1	48.5027	1.10	4.33
Scenario1	25yr,72hr	B1	48.7527	1.11	4.33
Scenario1	25yr,72hr	B1	49.0027	1.11	4.33
Scenario1	25yr,72hr	B1	49.2527	1.11	4.33
Scenario1	25yr,72hr	B1	49.5027	1.11	4.33
Scenario1	25yr,72hr	B1	49.7527	1.11	4.33
Scenario1	25yr,72hr	B1	50.0027	1.11	4.33
Scenario1	25yr,72hr	B1	50.2527	1.11	4.33
Scenario1	25yr,72hr	B1	50.5027	1.12	4.33
Scenario1	25yr,72hr	B1	50.7527	1.12	4.33
Scenario1	25yr,72hr	B1	51.0027	1.12	4.33
Scenario1	25yr,72hr	B1	51.2527	1.12	4.33
Scenario1	25yr,72hr	B1	51.5027	1.12	4.33
Scenario1	25yr,72hr	B1	51.7527	1.12	4.33
Scenario1	25yr,72hr	B1	52.0027	1.12	4.33
Scenario1	25yr,72hr	B1	52.2527	1.13	4.33

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	B1	52.5027	1.14	4.33
Scenario1	25yr,72hr	B1	52.7527	1.14	4.33
Scenario1	25yr,72hr	B1	53.0027	1.14	4.33
Scenario1	25yr,72hr	B1	53.2536	1.15	4.33
Scenario1	25yr,72hr	B1	53.5035	1.16	4.33
Scenario1	25yr,72hr	B1	53.7518	1.16	4.33
Scenario1	25yr,72hr	B1	54.0007	1.16	4.33
Scenario1	25yr,72hr	B1	54.2532	1.17	4.33
Scenario1	25yr,72hr	B1	54.5003	1.18	4.33
Scenario1	25yr,72hr	B1	54.7521	1.18	4.33
Scenario1	25yr,72hr	B1	55.0027	1.18	4.33
Scenario1	25yr,72hr	B1	55.2524	1.19	4.33
Scenario1	25yr,72hr	B1	55.5020	1.20	4.33
Scenario1	25yr,72hr	B1	55.7514	1.20	4.33
Scenario1	25yr,72hr	B1	56.0023	1.20	4.33
Scenario1	25yr,72hr	B1	56.2522	1.21	4.33
Scenario1	25yr,72hr	B1	56.5010	1.22	4.33
Scenario1	25yr,72hr	B1	56.7524	1.22	4.33
Scenario1	25yr,72hr	B1	57.0016	1.22	4.33
Scenario1	25yr,72hr	B1	57.2518	1.24	4.33
Scenario1	25yr,72hr	B1	57.5024	1.25	4.33
Scenario1	25yr,72hr	B1	57.7508	1.26	4.33
Scenario1	25yr,72hr	B1	58.0005	1.27	4.33
Scenario1	25yr,72hr	B1	58.2505	1.28	4.33
Scenario1	25yr,72hr	B1	58.5018	1.28	4.33
Scenario1	25yr,72hr	B1	58.7512	1.31	4.33
Scenario1	25yr,72hr	B1	59.0005	1.34	4.33
Scenario1	25yr,72hr	B1	59.2504	1.41	4.33
Scenario1	25yr,72hr	B1	59.5001	1.49	4.33
Scenario1	25yr,72hr	B1	59.7501	2.04	4.33
Scenario1	25yr,72hr	B1	60.0001	3.32	4.33
Scenario1	25yr,72hr	B1	60.2508	3.81	4.33
Scenario1	25yr,72hr	B1	60.5012	3.85	4.33
Scenario1	25yr,72hr	B1	60.7508	3.81	4.33
Scenario1	25yr,72hr	B1	61.0013	3.69	4.33
Scenario1	25yr,72hr	B1	61.2502	3.43	4.33
Scenario1	25yr,72hr	B1	61.5001	2.98	4.33
Scenario1	25yr,72hr	B1	61.7505	2.58	4.33
Scenario1	25yr,72hr	B1	62.0003	2.24	4.33
Scenario1	25yr,72hr	B1	62.2503	1.96	4.33
Scenario1	25yr,72hr	B1	62.5003	1.72	4.33
Scenario1	25yr,72hr	B1	62.7502	1.53	4.33

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	B1	63.0008	1.36	4.33
Scenario1	25yr,72hr	B1	63.2503	1.23	4.33
Scenario1	25yr,72hr	B1	63.5042	1.22	4.33
Scenario1	25yr,72hr	B1	63.7578	1.22	4.33
Scenario1	25yr,72hr	B1	64.0078	1.22	4.33
Scenario1	25yr,72hr	B1	64.2508	1.20	4.33
Scenario1	25yr,72hr	B1	64.5063	1.18	4.33
Scenario1	25yr,72hr	B1	64.7563	1.17	4.33
Scenario1	25yr,72hr	B1	65.0063	1.16	4.33
Scenario1	25yr,72hr	B1	65.2563	1.16	4.33
Scenario1	25yr,72hr	B1	65.5063	1.16	4.33
Scenario1	25yr,72hr	B1	65.7563	1.16	4.33
Scenario1	25yr,72hr	B1	66.0063	1.16	4.33
Scenario1	25yr,72hr	B1	66.2563	1.16	4.33
Scenario1	25yr,72hr	B1	66.5063	1.16	4.33
Scenario1	25yr,72hr	B1	66.7563	1.16	4.33
Scenario1	25yr,72hr	B1	67.0063	1.16	4.33
Scenario1	25yr,72hr	B1	67.2563	1.16	4.33
Scenario1	25yr,72hr	B1	67.5063	1.16	4.33
Scenario1	25yr,72hr	B1	67.7563	1.16	4.33
Scenario1	25yr,72hr	B1	68.0063	1.16	4.33
Scenario1	25yr,72hr	B1	68.2563	1.15	4.33
Scenario1	25yr,72hr	B1	68.5063	1.14	4.33
Scenario1	25yr,72hr	B1	68.7563	1.13	4.33
Scenario1	25yr,72hr	B1	69.0063	1.13	4.33
Scenario1	25yr,72hr	B1	69.2563	1.13	4.33
Scenario1	25yr,72hr	B1	69.5063	1.13	4.33
Scenario1	25yr,72hr	B1	69.7563	1.13	4.33
Scenario1	25yr,72hr	B1	70.0063	1.13	4.33
Scenario1	25yr,72hr	B1	70.2563	1.13	4.33
Scenario1	25yr,72hr	B1	70.5063	1.13	4.33
Scenario1	25yr,72hr	B1	70.7563	1.13	4.33
Scenario1	25yr,72hr	B1	71.0063	1.13	4.33
Scenario1	25yr,72hr	B1	71.2563	1.13	4.33
Scenario1	25yr,72hr	B1	71.5063	1.13	4.33
Scenario1	25yr,72hr	B1	71.7563	1.13	4.33
Scenario1	25yr,72hr	B1	72.0063	1.13	4.33
Scenario1	25yr,72hr	B1	72.2530	1.10	4.33
Scenario1	25yr,72hr	B1	72.5004	1.07	4.33
Scenario1	25yr,72hr	B1	72.7516	1.05	4.33
Scenario1	25yr,72hr	B1	73.0018	1.03	4.33
Scenario1	25yr,72hr	B1	73.2518	1.02	4.33

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	B1	73.5009	1.02	4.33
Scenario1	25yr,72hr	B1	73.7518	1.01	4.33
Scenario1	25yr,72hr	B1	74.0019	1.01	4.33
Scenario1	25yr,72hr	B1	74.2507	1.01	4.33
Scenario1	25yr,72hr	B1	74.5004	1.01	4.33
Scenario1	25yr,72hr	B1	74.7518	1.01	4.33
Scenario1	25yr,72hr	B1	75.0030	1.01	4.33
Scenario1	25yr,72hr	B1	75.2513	1.01	4.33
Scenario1	25yr,72hr	B1	75.5035	1.01	4.33
Scenario1	25yr,72hr	B1	75.7533	1.01	4.33
Scenario1	25yr,72hr	B1	76.0009	1.00	4.33
Scenario1	25yr,72hr	B1	76.2515	1.00	4.33
Scenario1	25yr,72hr	B1	76.5038	1.00	4.33
Scenario1	25yr,72hr	B1	76.7537	1.00	4.33
Scenario1	25yr,72hr	B1	77.0010	1.00	4.33
Scenario1	25yr,72hr	B1	77.2536	1.00	4.33
Scenario1	25yr,72hr	B1	77.5021	1.00	4.33
Scenario1	25yr,72hr	B1	77.7543	1.00	4.33
Scenario1	25yr,72hr	B1	78.0031	1.00	4.33
Scenario1	25yr,72hr	B1	78.2520	1.00	4.33
Scenario1	25yr,72hr	B1	78.5021	1.00	4.33
Scenario1	25yr,72hr	B1	78.7526	1.00	4.33
Scenario1	25yr,72hr	B1	79.0040	1.00	4.33
Scenario1	25yr,72hr	B1	79.2507	1.00	4.33
Scenario1	25yr,72hr	B1	79.5002	1.00	4.33
Scenario1	25yr,72hr	B1	79.7504	1.00	4.33
Scenario1	25yr,72hr	B1	80.0009	1.00	4.33
Scenario1	25yr,72hr	B1	80.2522	1.00	4.33
Scenario1	25yr,72hr	B1	80.5014	1.00	4.33
Scenario1	25yr,72hr	B1	80.7501	1.00	4.33
Scenario1	25yr,72hr	B1	81.0049	1.00	4.33
Scenario1	25yr,72hr	B1	81.2548	1.00	4.33
Scenario1	25yr,72hr	B1	81.5052	1.00	4.33
Scenario1	25yr,72hr	B1	81.7557	1.00	4.33
Scenario1	25yr,72hr	B1	82.0061	1.00	4.33
Scenario1	25yr,72hr	B1	82.2561	1.00	4.33
Scenario1	25yr,72hr	B1	82.5052	1.00	4.33
Scenario1	25yr,72hr	B1	82.7515	1.00	4.33
Scenario1	25yr,72hr	B1	83.0038	1.00	4.33
Scenario1	25yr,72hr	B1	83.2560	1.00	4.33
Scenario1	25yr,72hr	B1	83.5012	1.00	4.33
Scenario1	25yr,72hr	B1	83.7564	1.00	4.33

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	B1	84.0015	1.00	4.33
Scenario1	25yr,72hr	B1	84.2565	1.00	4.33
Scenario1	25yr,72hr	B1	84.5032	1.00	4.33
Scenario1	25yr,72hr	B1	84.7532	1.00	4.33
Scenario1	25yr,72hr	B1	85.0032	1.00	4.33
Scenario1	25yr,72hr	B1	85.2532	1.00	4.33
Scenario1	25yr,72hr	B1	85.5032	1.00	4.33
Scenario1	25yr,72hr	B1	85.7532	1.00	4.33
Scenario1	25yr,72hr	B1	86.0032	1.00	4.33
Scenario1	25yr,72hr	B1	86.2532	1.00	4.33
Scenario1	25yr,72hr	B1	86.5032	1.00	4.33
Scenario1	25yr,72hr	B1	86.7532	1.00	4.33
Scenario1	25yr,72hr	B1	87.0032	1.00	4.33
Scenario1	25yr,72hr	B1	87.2532	1.00	4.33
Scenario1	25yr,72hr	B1	87.5032	1.00	4.33
Scenario1	25yr,72hr	B1	87.7532	1.00	4.33
Scenario1	25yr,72hr	B1	88.0032	1.00	4.33
Scenario1	25yr,72hr	B1	88.2532	1.00	4.33
Scenario1	25yr,72hr	B1	88.5032	1.00	4.33
Scenario1	25yr,72hr	B1	88.7532	1.00	4.33
Scenario1	25yr,72hr	B1	89.0032	1.00	4.33
Scenario1	25yr,72hr	B1	89.2532	1.00	4.33
Scenario1	25yr,72hr	B1	89.5032	1.00	4.33
Scenario1	25yr,72hr	B1	89.7532	1.00	4.33
Scenario1	25yr,72hr	B1	90.0032	1.00	4.33
Scenario1	25yr,72hr	B1	90.2532	1.00	4.33
Scenario1	25yr,72hr	B1	90.5032	1.00	4.33
Scenario1	25yr,72hr	B1	90.7532	1.00	4.33
Scenario1	25yr,72hr	B1	91.0032	1.00	4.33
Scenario1	25yr,72hr	B1	91.2532	1.00	4.33
Scenario1	25yr,72hr	B1	91.5032	1.00	4.33
Scenario1	25yr,72hr	B1	91.7532	1.00	4.33
Scenario1	25yr,72hr	B1	92.0032	1.00	4.33
Scenario1	25yr,72hr	B1	92.2532	1.00	4.33
Scenario1	25yr,72hr	B1	92.5032	1.00	4.33
Scenario1	25yr,72hr	B1	92.7532	1.00	4.33
Scenario1	25yr,72hr	B1	93.0032	1.00	4.33
Scenario1	25yr,72hr	B1	93.2532	1.00	4.33
Scenario1	25yr,72hr	B1	93.5032	1.00	4.33
Scenario1	25yr,72hr	B1	93.7532	1.00	4.33
Scenario1	25yr,72hr	B1	94.0032	1.00	4.33
Scenario1	25yr,72hr	B1	94.2532	1.00	4.33

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	B1	94.5032	1.00	4.33
Scenario1	25yr,72hr	B1	94.7532	1.00	4.33
Scenario1	25yr,72hr	B1	95.0032	1.00	4.33
Scenario1	25yr,72hr	B1	95.2532	1.00	4.33
Scenario1	25yr,72hr	B1	95.5032	1.00	4.33
Scenario1	25yr,72hr	B1	95.7532	1.00	4.33
Scenario1	25yr,72hr	B1	96.0032	1.00	4.33
Scenario1	25yr,72hr	B1	96.2532	1.00	4.33
Scenario1	25yr,72hr	B1	96.5032	1.00	4.33
Scenario1	25yr,72hr	B1	96.7532	1.00	4.33
Scenario1	25yr,72hr	B1	97.0032	1.00	4.33
Scenario1	25yr,72hr	B1	97.2532	1.00	4.33
Scenario1	25yr,72hr	B1	97.5032	1.00	4.33
Scenario1	25yr,72hr	B1	97.7532	1.00	4.33
Scenario1	25yr,72hr	B1	98.0032	1.00	4.33
Scenario1	25yr,72hr	B1	98.2532	1.00	4.33
Scenario1	25yr,72hr	B1	98.5032	1.00	4.33
Scenario1	25yr,72hr	B1	98.7532	1.00	4.33
Scenario1	25yr,72hr	B1	99.0032	1.00	4.33
Scenario1	25yr,72hr	B1	99.2532	1.00	4.33
Scenario1	25yr,72hr	B1	99.5032	1.00	4.33
Scenario1	25yr,72hr	B1	99.7532	1.00	4.33
Scenario1	25yr,72hr	B1	100.0032	1.00	4.33
Scenario1	25yr,72hr	B1	100.2532	1.00	4.33
Scenario1	25yr,72hr	B1	100.5032	1.00	4.33
Scenario1	25yr,72hr	B1	100.7532	1.00	4.33
Scenario1	25yr,72hr	B1	101.0032	1.00	4.33
Scenario1	25yr,72hr	B1	101.2532	1.00	4.33
Scenario1	25yr,72hr	B1	101.5032	1.00	4.33
Scenario1	25yr,72hr	B1	101.7532	1.00	4.33
Scenario1	25yr,72hr	B1	102.0032	1.00	4.33
Scenario1	25yr,72hr	B1	102.2532	1.00	4.33
Scenario1	25yr,72hr	B1	102.5032	1.00	4.33
Scenario1	25yr,72hr	B1	102.7532	1.00	4.33
Scenario1	25yr,72hr	B1	103.0032	1.00	4.33
Scenario1	25yr,72hr	B1	103.2532	1.00	4.33
Scenario1	25yr,72hr	B1	103.5032	1.00	4.33
Scenario1	25yr,72hr	B1	103.7532	1.00	4.33
Scenario1	25yr,72hr	B1	104.0032	1.00	4.33
Scenario1	25yr,72hr	B1	104.2532	1.00	4.33
Scenario1	25yr,72hr	B1	104.5032	1.00	4.33
Scenario1	25yr,72hr	B1	104.7532	1.00	4.33

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	B1	105.0032	1.00	4.33
Scenario1	25yr,72hr	B1	105.2532	1.00	4.33
Scenario1	25yr,72hr	B1	105.5032	1.00	4.33
Scenario1	25yr,72hr	B1	105.7532	1.00	4.33
Scenario1	25yr,72hr	B1	106.0032	1.00	4.33
Scenario1	25yr,72hr	B1	106.2532	1.00	4.33
Scenario1	25yr,72hr	B1	106.5032	1.00	4.33
Scenario1	25yr,72hr	B1	106.7532	1.00	4.33
Scenario1	25yr,72hr	B1	107.0032	1.00	4.33
Scenario1	25yr,72hr	B1	107.2532	1.00	4.33
Scenario1	25yr,72hr	B1	107.5032	1.00	4.33
Scenario1	25yr,72hr	B1	107.7532	1.00	4.33
Scenario1	25yr,72hr	B1	108.0032	1.00	4.33
Scenario1	25yr,72hr	B1	108.2532	1.00	4.33
Scenario1	25yr,72hr	B1	108.5032	1.00	4.33
Scenario1	25yr,72hr	B1	108.7532	1.00	4.33
Scenario1	25yr,72hr	B1	109.0032	1.00	4.33
Scenario1	25yr,72hr	B1	109.2532	1.00	4.33
Scenario1	25yr,72hr	B1	109.5032	1.00	4.33
Scenario1	25yr,72hr	B1	109.7532	1.00	4.33
Scenario1	25yr,72hr	B1	110.0032	1.00	4.33
Scenario1	25yr,72hr	B1	110.2532	1.00	4.33
Scenario1	25yr,72hr	B1	110.5032	1.00	4.33
Scenario1	25yr,72hr	B1	110.7532	1.00	4.33
Scenario1	25yr,72hr	B1	111.0032	1.00	4.33
Scenario1	25yr,72hr	B1	111.2532	1.00	4.33
Scenario1	25yr,72hr	B1	111.5032	1.00	4.33
Scenario1	25yr,72hr	B1	111.7532	1.00	4.33
Scenario1	25yr,72hr	B1	112.0032	1.00	4.33
Scenario1	25yr,72hr	B1	112.2532	1.00	4.33
Scenario1	25yr,72hr	B1	112.5032	1.00	4.33
Scenario1	25yr,72hr	B1	112.7532	1.00	4.33
Scenario1	25yr,72hr	B1	113.0032	1.00	4.33
Scenario1	25yr,72hr	B1	113.2532	1.00	4.33
Scenario1	25yr,72hr	B1	113.5032	1.00	4.33
Scenario1	25yr,72hr	B1	113.7532	1.00	4.33
Scenario1	25yr,72hr	B1	114.0032	1.00	4.33
Scenario1	25yr,72hr	B1	114.2532	1.00	4.33
Scenario1	25yr,72hr	B1	114.5032	1.00	4.33
Scenario1	25yr,72hr	B1	114.7532	1.00	4.33
Scenario1	25yr,72hr	B1	115.0032	1.00	4.33
Scenario1	25yr,72hr	B1	115.2532	1.00	4.33

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	B1	115.5032	1.00	4.33
Scenario1	25yr,72hr	B1	115.7532	1.00	4.33
Scenario1	25yr,72hr	B1	116.0032	1.00	4.33
Scenario1	25yr,72hr	B1	116.2532	1.00	4.33
Scenario1	25yr,72hr	B1	116.5032	1.00	4.33
Scenario1	25yr,72hr	B1	116.7532	1.00	4.33
Scenario1	25yr,72hr	B1	117.0032	1.00	4.33
Scenario1	25yr,72hr	B1	117.2532	1.00	4.33
Scenario1	25yr,72hr	B1	117.5032	1.00	4.33
Scenario1	25yr,72hr	B1	117.7532	1.00	4.33
Scenario1	25yr,72hr	B1	118.0032	1.00	4.33
Scenario1	25yr,72hr	B1	118.2532	1.00	4.33
Scenario1	25yr,72hr	B1	118.5032	1.00	4.33
Scenario1	25yr,72hr	B1	118.7532	1.00	4.33
Scenario1	25yr,72hr	B1	119.0032	1.00	4.33
Scenario1	25yr,72hr	B1	119.2532	1.00	4.33
Scenario1	25yr,72hr	B1	119.5032	1.00	4.33
Scenario1	25yr,72hr	B1	119.7532	1.00	4.33
Scenario1	25yr,72hr	B1	120.0032	1.00	4.33
Scenario1	25yr,72hr	B2	0.0000	1.00	5.21
Scenario1	25yr,72hr	B2	0.2511	1.00	5.21
Scenario1	25yr,72hr	B2	0.5050	1.00	5.21
Scenario1	25yr,72hr	B2	0.7527	1.00	5.21
Scenario1	25yr,72hr	B2	1.0027	1.00	5.21
Scenario1	25yr,72hr	B2	1.2527	1.00	5.21
Scenario1	25yr,72hr	B2	1.5027	1.00	5.21
Scenario1	25yr,72hr	B2	1.7527	1.00	5.21
Scenario1	25yr,72hr	B2	2.0027	1.00	5.21
Scenario1	25yr,72hr	B2	2.2527	1.00	5.21
Scenario1	25yr,72hr	B2	2.5027	1.00	5.21
Scenario1	25yr,72hr	B2	2.7527	1.00	5.21
Scenario1	25yr,72hr	B2	3.0027	1.00	5.21
Scenario1	25yr,72hr	B2	3.2527	1.00	5.21
Scenario1	25yr,72hr	B2	3.5027	1.00	5.21
Scenario1	25yr,72hr	B2	3.7527	1.00	5.21
Scenario1	25yr,72hr	B2	4.0027	1.00	5.21
Scenario1	25yr,72hr	B2	4.2527	1.00	5.21
Scenario1	25yr,72hr	B2	4.5027	1.00	5.21
Scenario1	25yr,72hr	B2	4.7527	1.00	5.21
Scenario1	25yr,72hr	B2	5.0027	1.00	5.21
Scenario1	25yr,72hr	B2	5.2527	1.00	5.21
Scenario1	25yr,72hr	B2	5.5027	1.00	5.21

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	B2	5.7527	1.00	5.21
Scenario1	25yr,72hr	B2	6.0027	1.00	5.21
Scenario1	25yr,72hr	B2	6.2527	1.00	5.21
Scenario1	25yr,72hr	B2	6.5027	1.00	5.21
Scenario1	25yr,72hr	B2	6.7527	1.00	5.21
Scenario1	25yr,72hr	B2	7.0027	1.00	5.21
Scenario1	25yr,72hr	B2	7.2527	1.00	5.21
Scenario1	25yr,72hr	B2	7.5027	1.00	5.21
Scenario1	25yr,72hr	B2	7.7527	1.00	5.21
Scenario1	25yr,72hr	B2	8.0027	1.00	5.21
Scenario1	25yr,72hr	B2	8.2527	1.00	5.21
Scenario1	25yr,72hr	B2	8.5027	1.00	5.21
Scenario1	25yr,72hr	B2	8.7527	1.00	5.21
Scenario1	25yr,72hr	B2	9.0027	1.00	5.21
Scenario1	25yr,72hr	B2	9.2527	1.00	5.21
Scenario1	25yr,72hr	B2	9.5027	1.00	5.21
Scenario1	25yr,72hr	B2	9.7527	1.00	5.21
Scenario1	25yr,72hr	B2	10.0027	1.00	5.21
Scenario1	25yr,72hr	B2	10.2527	1.00	5.21
Scenario1	25yr,72hr	B2	10.5027	1.00	5.21
Scenario1	25yr,72hr	B2	10.7527	1.00	5.21
Scenario1	25yr,72hr	B2	11.0027	1.00	5.21
Scenario1	25yr,72hr	B2	11.2527	1.00	5.21
Scenario1	25yr,72hr	B2	11.5027	1.00	5.21
Scenario1	25yr,72hr	B2	11.7527	1.01	5.21
Scenario1	25yr,72hr	B2	12.0027	1.01	5.21
Scenario1	25yr,72hr	B2	12.2527	1.01	5.21
Scenario1	25yr,72hr	B2	12.5027	1.01	5.21
Scenario1	25yr,72hr	B2	12.7527	1.01	5.21
Scenario1	25yr,72hr	B2	13.0027	1.02	5.21
Scenario1	25yr,72hr	B2	13.2527	1.02	5.21
Scenario1	25yr,72hr	B2	13.5027	1.02	5.21
Scenario1	25yr,72hr	B2	13.7527	1.02	5.21
Scenario1	25yr,72hr	B2	14.0027	1.03	5.21
Scenario1	25yr,72hr	B2	14.2527	1.03	5.21
Scenario1	25yr,72hr	B2	14.5027	1.03	5.21
Scenario1	25yr,72hr	B2	14.7527	1.04	5.21
Scenario1	25yr,72hr	B2	15.0027	1.04	5.21
Scenario1	25yr,72hr	B2	15.2527	1.04	5.21
Scenario1	25yr,72hr	B2	15.5027	1.05	5.21
Scenario1	25yr,72hr	B2	15.7527	1.05	5.21
Scenario1	25yr,72hr	B2	16.0027	1.05	5.21

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	B2	16.2527	1.06	5.21
Scenario1	25yr,72hr	B2	16.5027	1.06	5.21
Scenario1	25yr,72hr	B2	16.7527	1.07	5.21
Scenario1	25yr,72hr	B2	17.0027	1.07	5.21
Scenario1	25yr,72hr	B2	17.2527	1.07	5.21
Scenario1	25yr,72hr	B2	17.5027	1.08	5.21
Scenario1	25yr,72hr	B2	17.7527	1.08	5.21
Scenario1	25yr,72hr	B2	18.0027	1.09	5.21
Scenario1	25yr,72hr	B2	18.2527	1.09	5.21
Scenario1	25yr,72hr	B2	18.5027	1.09	5.21
Scenario1	25yr,72hr	B2	18.7527	1.10	5.21
Scenario1	25yr,72hr	B2	19.0027	1.10	5.21
Scenario1	25yr,72hr	B2	19.2527	1.11	5.21
Scenario1	25yr,72hr	B2	19.5027	1.11	5.21
Scenario1	25yr,72hr	B2	19.7527	1.11	5.21
Scenario1	25yr,72hr	B2	20.0027	1.12	5.21
Scenario1	25yr,72hr	B2	20.2527	1.12	5.21
Scenario1	25yr,72hr	B2	20.5027	1.13	5.21
Scenario1	25yr,72hr	B2	20.7527	1.13	5.21
Scenario1	25yr,72hr	B2	21.0027	1.13	5.21
Scenario1	25yr,72hr	B2	21.2527	1.14	5.21
Scenario1	25yr,72hr	B2	21.5027	1.14	5.21
Scenario1	25yr,72hr	B2	21.7527	1.14	5.21
Scenario1	25yr,72hr	B2	22.0027	1.15	5.21
Scenario1	25yr,72hr	B2	22.2527	1.15	5.21
Scenario1	25yr,72hr	B2	22.5027	1.15	5.21
Scenario1	25yr,72hr	B2	22.7527	1.16	5.21
Scenario1	25yr,72hr	B2	23.0027	1.16	5.21
Scenario1	25yr,72hr	B2	23.2527	1.16	5.21
Scenario1	25yr,72hr	B2	23.5027	1.17	5.21
Scenario1	25yr,72hr	B2	23.7527	1.17	5.21
Scenario1	25yr,72hr	B2	24.0027	1.17	5.21
Scenario1	25yr,72hr	B2	24.2527	1.18	5.21
Scenario1	25yr,72hr	B2	24.5027	1.18	5.21
Scenario1	25yr,72hr	B2	24.7527	1.19	5.21
Scenario1	25yr,72hr	B2	25.0027	1.20	5.21
Scenario1	25yr,72hr	B2	25.2527	1.20	5.21
Scenario1	25yr,72hr	B2	25.5027	1.21	5.21
Scenario1	25yr,72hr	B2	25.7527	1.21	5.21
Scenario1	25yr,72hr	B2	26.0027	1.22	5.21
Scenario1	25yr,72hr	B2	26.2527	1.23	5.21
Scenario1	25yr,72hr	B2	26.5027	1.23	5.21

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	B2	26.7527	1.24	5.21
Scenario1	25yr,72hr	B2	27.0027	1.24	5.21
Scenario1	25yr,72hr	B2	27.2527	1.25	5.21
Scenario1	25yr,72hr	B2	27.5027	1.25	5.21
Scenario1	25yr,72hr	B2	27.7527	1.26	5.21
Scenario1	25yr,72hr	B2	28.0027	1.26	5.21
Scenario1	25yr,72hr	B2	28.2527	1.27	5.21
Scenario1	25yr,72hr	B2	28.5027	1.27	5.21
Scenario1	25yr,72hr	B2	28.7527	1.28	5.21
Scenario1	25yr,72hr	B2	29.0027	1.28	5.21
Scenario1	25yr,72hr	B2	29.2527	1.29	5.21
Scenario1	25yr,72hr	B2	29.5027	1.29	5.21
Scenario1	25yr,72hr	B2	29.7527	1.30	5.21
Scenario1	25yr,72hr	B2	30.0027	1.30	5.21
Scenario1	25yr,72hr	B2	30.2527	1.30	5.21
Scenario1	25yr,72hr	B2	30.5027	1.31	5.21
Scenario1	25yr,72hr	B2	30.7527	1.31	5.21
Scenario1	25yr,72hr	B2	31.0027	1.31	5.21
Scenario1	25yr,72hr	B2	31.2527	1.32	5.21
Scenario1	25yr,72hr	B2	31.5027	1.32	5.21
Scenario1	25yr,72hr	B2	31.7527	1.33	5.21
Scenario1	25yr,72hr	B2	32.0027	1.33	5.21
Scenario1	25yr,72hr	B2	32.2527	1.33	5.21
Scenario1	25yr,72hr	B2	32.5027	1.34	5.21
Scenario1	25yr,72hr	B2	32.7527	1.34	5.21
Scenario1	25yr,72hr	B2	33.0027	1.34	5.21
Scenario1	25yr,72hr	B2	33.2527	1.35	5.21
Scenario1	25yr,72hr	B2	33.5027	1.35	5.21
Scenario1	25yr,72hr	B2	33.7527	1.36	5.21
Scenario1	25yr,72hr	B2	34.0027	1.36	5.21
Scenario1	25yr,72hr	B2	34.2527	1.36	5.21
Scenario1	25yr,72hr	B2	34.5027	1.37	5.21
Scenario1	25yr,72hr	B2	34.7527	1.37	5.21
Scenario1	25yr,72hr	B2	35.0027	1.37	5.21
Scenario1	25yr,72hr	B2	35.2527	1.38	5.21
Scenario1	25yr,72hr	B2	35.5027	1.38	5.21
Scenario1	25yr,72hr	B2	35.7527	1.39	5.21
Scenario1	25yr,72hr	B2	36.0027	1.39	5.21
Scenario1	25yr,72hr	B2	36.2527	1.39	5.21
Scenario1	25yr,72hr	B2	36.5027	1.40	5.21
Scenario1	25yr,72hr	B2	36.7527	1.40	5.21
Scenario1	25yr,72hr	B2	37.0027	1.40	5.21

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	B2	37.2527	1.41	5.21
Scenario1	25yr,72hr	B2	37.5027	1.41	5.21
Scenario1	25yr,72hr	B2	37.7527	1.41	5.21
Scenario1	25yr,72hr	B2	38.0027	1.42	5.21
Scenario1	25yr,72hr	B2	38.2527	1.42	5.21
Scenario1	25yr,72hr	B2	38.5027	1.43	5.21
Scenario1	25yr,72hr	B2	38.7527	1.43	5.21
Scenario1	25yr,72hr	B2	39.0027	1.43	5.21
Scenario1	25yr,72hr	B2	39.2527	1.44	5.21
Scenario1	25yr,72hr	B2	39.5027	1.44	5.21
Scenario1	25yr,72hr	B2	39.7527	1.44	5.21
Scenario1	25yr,72hr	B2	40.0027	1.45	5.21
Scenario1	25yr,72hr	B2	40.2527	1.45	5.21
Scenario1	25yr,72hr	B2	40.5027	1.45	5.21
Scenario1	25yr,72hr	B2	40.7527	1.46	5.21
Scenario1	25yr,72hr	B2	41.0027	1.46	5.21
Scenario1	25yr,72hr	B2	41.2527	1.46	5.21
Scenario1	25yr,72hr	B2	41.5027	1.47	5.21
Scenario1	25yr,72hr	B2	41.7527	1.47	5.21
Scenario1	25yr,72hr	B2	42.0027	1.47	5.21
Scenario1	25yr,72hr	B2	42.2527	1.48	5.21
Scenario1	25yr,72hr	B2	42.5027	1.48	5.21
Scenario1	25yr,72hr	B2	42.7527	1.48	5.21
Scenario1	25yr,72hr	B2	43.0027	1.49	5.21
Scenario1	25yr,72hr	B2	43.2527	1.49	5.21
Scenario1	25yr,72hr	B2	43.5027	1.49	5.21
Scenario1	25yr,72hr	B2	43.7527	1.50	5.21
Scenario1	25yr,72hr	B2	44.0027	1.50	5.21
Scenario1	25yr,72hr	B2	44.2527	1.50	5.21
Scenario1	25yr,72hr	B2	44.5027	1.51	5.21
Scenario1	25yr,72hr	B2	44.7527	1.51	5.21
Scenario1	25yr,72hr	B2	45.0027	1.51	5.21
Scenario1	25yr,72hr	B2	45.2527	1.52	5.21
Scenario1	25yr,72hr	B2	45.5027	1.52	5.21
Scenario1	25yr,72hr	B2	45.7527	1.52	5.21
Scenario1	25yr,72hr	B2	46.0027	1.53	5.21
Scenario1	25yr,72hr	B2	46.2527	1.53	5.21
Scenario1	25yr,72hr	B2	46.5027	1.53	5.21
Scenario1	25yr,72hr	B2	46.7527	1.54	5.21
Scenario1	25yr,72hr	B2	47.0027	1.54	5.21
Scenario1	25yr,72hr	B2	47.2527	1.54	5.21
Scenario1	25yr,72hr	B2	47.5027	1.54	5.21

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	B2	47.7527	1.55	5.21
Scenario1	25yr,72hr	B2	48.0027	1.55	5.21
Scenario1	25yr,72hr	B2	48.2527	1.55	5.21
Scenario1	25yr,72hr	B2	48.5027	1.56	5.21
Scenario1	25yr,72hr	B2	48.7527	1.56	5.21
Scenario1	25yr,72hr	B2	49.0027	1.57	5.21
Scenario1	25yr,72hr	B2	49.2527	1.57	5.21
Scenario1	25yr,72hr	B2	49.5027	1.58	5.21
Scenario1	25yr,72hr	B2	49.7527	1.58	5.21
Scenario1	25yr,72hr	B2	50.0027	1.59	5.21
Scenario1	25yr,72hr	B2	50.2527	1.60	5.21
Scenario1	25yr,72hr	B2	50.5027	1.60	5.21
Scenario1	25yr,72hr	B2	50.7527	1.61	5.21
Scenario1	25yr,72hr	B2	51.0027	1.62	5.21
Scenario1	25yr,72hr	B2	51.2527	1.63	5.21
Scenario1	25yr,72hr	B2	51.5027	1.64	5.21
Scenario1	25yr,72hr	B2	51.7527	1.65	5.21
Scenario1	25yr,72hr	B2	52.0027	1.66	5.21
Scenario1	25yr,72hr	B2	52.2527	1.68	5.21
Scenario1	25yr,72hr	B2	52.5027	1.69	5.21
Scenario1	25yr,72hr	B2	52.7527	1.71	5.21
Scenario1	25yr,72hr	B2	53.0027	1.73	5.21
Scenario1	25yr,72hr	B2	53.2536	1.75	5.21
Scenario1	25yr,72hr	B2	53.5035	1.78	5.21
Scenario1	25yr,72hr	B2	53.7518	1.81	5.21
Scenario1	25yr,72hr	B2	54.0007	1.83	5.21
Scenario1	25yr,72hr	B2	54.2532	1.86	5.21
Scenario1	25yr,72hr	B2	54.5003	1.90	5.21
Scenario1	25yr,72hr	B2	54.7521	1.93	5.21
Scenario1	25yr,72hr	B2	55.0027	1.97	5.21
Scenario1	25yr,72hr	B2	55.2524	2.01	5.21
Scenario1	25yr,72hr	B2	55.5020	2.05	5.21
Scenario1	25yr,72hr	B2	55.7514	2.09	5.21
Scenario1	25yr,72hr	B2	56.0023	2.14	5.21
Scenario1	25yr,72hr	B2	56.2522	2.19	5.21
Scenario1	25yr,72hr	B2	56.5010	2.24	5.21
Scenario1	25yr,72hr	B2	56.7524	2.29	5.21
Scenario1	25yr,72hr	B2	57.0016	2.35	5.21
Scenario1	25yr,72hr	B2	57.2518	2.41	5.21
Scenario1	25yr,72hr	B2	57.5024	2.48	5.21
Scenario1	25yr,72hr	B2	57.7508	2.55	5.21
Scenario1	25yr,72hr	B2	58.0005	2.63	5.21

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	B2	58.2505	2.72	5.21
Scenario1	25yr,72hr	B2	58.5018	2.81	5.21
Scenario1	25yr,72hr	B2	58.7512	2.91	5.21
Scenario1	25yr,72hr	B2	59.0005	3.03	5.21
Scenario1	25yr,72hr	B2	59.2504	3.19	5.21
Scenario1	25yr,72hr	B2	59.5001	3.39	5.21
Scenario1	25yr,72hr	B2	59.7501	3.84	5.21
Scenario1	25yr,72hr	B2	60.0001	4.26	5.21
Scenario1	25yr,72hr	B2	60.2508	4.42	5.21
Scenario1	25yr,72hr	B2	60.5012	4.45	5.21
Scenario1	25yr,72hr	B2	60.7508	4.44	5.21
Scenario1	25yr,72hr	B2	61.0013	4.41	5.21
Scenario1	25yr,72hr	B2	61.2502	4.38	5.21
Scenario1	25yr,72hr	B2	61.5001	4.34	5.21
Scenario1	25yr,72hr	B2	61.7505	4.31	5.21
Scenario1	25yr,72hr	B2	62.0003	4.28	5.21
Scenario1	25yr,72hr	B2	62.2503	4.25	5.21
Scenario1	25yr,72hr	B2	62.5003	4.22	5.21
Scenario1	25yr,72hr	B2	62.7502	4.20	5.21
Scenario1	25yr,72hr	B2	63.0008	4.18	5.21
Scenario1	25yr,72hr	B2	63.2503	4.16	5.21
Scenario1	25yr,72hr	B2	63.5042	4.15	5.21
Scenario1	25yr,72hr	B2	63.7578	4.13	5.21
Scenario1	25yr,72hr	B2	64.0078	4.12	5.21
Scenario1	25yr,72hr	B2	64.2508	4.11	5.21
Scenario1	25yr,72hr	B2	64.5063	4.10	5.21
Scenario1	25yr,72hr	B2	64.7563	4.09	5.21
Scenario1	25yr,72hr	B2	65.0063	4.08	5.21
Scenario1	25yr,72hr	B2	65.2563	4.07	5.21
Scenario1	25yr,72hr	B2	65.5063	4.06	5.21
Scenario1	25yr,72hr	B2	65.7563	4.06	5.21
Scenario1	25yr,72hr	B2	66.0063	4.05	5.21
Scenario1	25yr,72hr	B2	66.2563	4.05	5.21
Scenario1	25yr,72hr	B2	66.5063	4.04	5.21
Scenario1	25yr,72hr	B2	66.7563	4.04	5.21
Scenario1	25yr,72hr	B2	67.0063	4.04	5.21
Scenario1	25yr,72hr	B2	67.2563	4.03	5.21
Scenario1	25yr,72hr	B2	67.5063	4.03	5.21
Scenario1	25yr,72hr	B2	67.7563	4.03	5.21
Scenario1	25yr,72hr	B2	68.0063	4.03	5.21
Scenario1	25yr,72hr	B2	68.2563	4.03	5.21
Scenario1	25yr,72hr	B2	68.5063	4.02	5.21

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	B2	68.7563	4.01	5.21
Scenario1	25yr,72hr	B2	69.0063	4.01	5.21
Scenario1	25yr,72hr	B2	69.2563	4.00	5.21
Scenario1	25yr,72hr	B2	69.5063	4.00	5.21
Scenario1	25yr,72hr	B2	69.7563	3.99	5.21
Scenario1	25yr,72hr	B2	70.0063	3.99	5.21
Scenario1	25yr,72hr	B2	70.2563	3.98	5.21
Scenario1	25yr,72hr	B2	70.5063	3.98	5.21
Scenario1	25yr,72hr	B2	70.7563	3.97	5.21
Scenario1	25yr,72hr	B2	71.0063	3.97	5.21
Scenario1	25yr,72hr	B2	71.2563	3.96	5.21
Scenario1	25yr,72hr	B2	71.5063	3.95	5.21
Scenario1	25yr,72hr	B2	71.7563	3.95	5.21
Scenario1	25yr,72hr	B2	72.0063	3.94	5.21
Scenario1	25yr,72hr	B2	72.2530	3.93	5.21
Scenario1	25yr,72hr	B2	72.5004	3.92	5.21
Scenario1	25yr,72hr	B2	72.7516	3.90	5.21
Scenario1	25yr,72hr	B2	73.0018	3.88	5.21
Scenario1	25yr,72hr	B2	73.2518	3.85	5.21
Scenario1	25yr,72hr	B2	73.5009	3.83	5.21
Scenario1	25yr,72hr	B2	73.7518	3.81	5.21
Scenario1	25yr,72hr	B2	74.0019	3.78	5.21
Scenario1	25yr,72hr	B2	74.2507	3.76	5.21
Scenario1	25yr,72hr	B2	74.5004	3.73	5.21
Scenario1	25yr,72hr	B2	74.7518	3.71	5.21
Scenario1	25yr,72hr	B2	75.0030	3.68	5.21
Scenario1	25yr,72hr	B2	75.2513	3.65	5.21
Scenario1	25yr,72hr	B2	75.5035	3.62	5.21
Scenario1	25yr,72hr	B2	75.7533	3.59	5.21
Scenario1	25yr,72hr	B2	76.0009	3.55	5.21
Scenario1	25yr,72hr	B2	76.2515	3.51	5.21
Scenario1	25yr,72hr	B2	76.5038	3.47	5.21
Scenario1	25yr,72hr	B2	76.7537	3.43	5.21
Scenario1	25yr,72hr	B2	77.0010	3.39	5.21
Scenario1	25yr,72hr	B2	77.2536	3.34	5.21
Scenario1	25yr,72hr	B2	77.5021	3.30	5.21
Scenario1	25yr,72hr	B2	77.7543	3.26	5.21
Scenario1	25yr,72hr	B2	78.0031	3.22	5.21
Scenario1	25yr,72hr	B2	78.2520	3.18	5.21
Scenario1	25yr,72hr	B2	78.5021	3.14	5.21
Scenario1	25yr,72hr	B2	78.7526	3.10	5.21
Scenario1	25yr,72hr	B2	79.0040	3.06	5.21

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	B2	79.2507	3.02	5.21
Scenario1	25yr,72hr	B2	79.5002	2.98	5.21
Scenario1	25yr,72hr	B2	79.7504	2.94	5.21
Scenario1	25yr,72hr	B2	80.0009	2.90	5.21
Scenario1	25yr,72hr	B2	80.2522	2.86	5.21
Scenario1	25yr,72hr	B2	80.5014	2.83	5.21
Scenario1	25yr,72hr	B2	80.7501	2.79	5.21
Scenario1	25yr,72hr	B2	81.0049	2.75	5.21
Scenario1	25yr,72hr	B2	81.2548	2.71	5.21
Scenario1	25yr,72hr	B2	81.5052	2.68	5.21
Scenario1	25yr,72hr	B2	81.7557	2.64	5.21
Scenario1	25yr,72hr	B2	82.0061	2.61	5.21
Scenario1	25yr,72hr	B2	82.2561	2.57	5.21
Scenario1	25yr,72hr	B2	82.5052	2.54	5.21
Scenario1	25yr,72hr	B2	82.7515	2.51	5.21
Scenario1	25yr,72hr	B2	83.0038	2.47	5.21
Scenario1	25yr,72hr	B2	83.2560	2.44	5.21
Scenario1	25yr,72hr	B2	83.5012	2.41	5.21
Scenario1	25yr,72hr	B2	83.7564	2.38	5.21
Scenario1	25yr,72hr	B2	84.0015	2.35	5.21
Scenario1	25yr,72hr	B2	84.2565	2.31	5.21
Scenario1	25yr,72hr	B2	84.5032	2.28	5.21
Scenario1	25yr,72hr	B2	84.7532	2.25	5.21
Scenario1	25yr,72hr	B2	85.0032	2.23	5.21
Scenario1	25yr,72hr	B2	85.2532	2.20	5.21
Scenario1	25yr,72hr	B2	85.5032	2.17	5.21
Scenario1	25yr,72hr	B2	85.7532	2.14	5.21
Scenario1	25yr,72hr	B2	86.0032	2.12	5.21
Scenario1	25yr,72hr	B2	86.2532	2.09	5.21
Scenario1	25yr,72hr	B2	86.5032	2.06	5.21
Scenario1	25yr,72hr	B2	86.7532	2.04	5.21
Scenario1	25yr,72hr	B2	87.0032	2.01	5.21
Scenario1	25yr,72hr	B2	87.2532	1.99	5.21
Scenario1	25yr,72hr	B2	87.5032	1.96	5.21
Scenario1	25yr,72hr	B2	87.7532	1.94	5.21
Scenario1	25yr,72hr	B2	88.0032	1.92	5.21
Scenario1	25yr,72hr	B2	88.2532	1.89	5.21
Scenario1	25yr,72hr	B2	88.5032	1.87	5.21
Scenario1	25yr,72hr	B2	88.7532	1.85	5.21
Scenario1	25yr,72hr	B2	89.0032	1.83	5.21
Scenario1	25yr,72hr	B2	89.2532	1.80	5.21
Scenario1	25yr,72hr	B2	89.5032	1.78	5.21

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	B2	89.7532	1.76	5.21
Scenario1	25yr,72hr	B2	90.0032	1.74	5.21
Scenario1	25yr,72hr	B2	90.2532	1.72	5.21
Scenario1	25yr,72hr	B2	90.5032	1.70	5.21
Scenario1	25yr,72hr	B2	90.7532	1.68	5.21
Scenario1	25yr,72hr	B2	91.0032	1.66	5.21
Scenario1	25yr,72hr	B2	91.2532	1.64	5.21
Scenario1	25yr,72hr	B2	91.5032	1.63	5.21
Scenario1	25yr,72hr	B2	91.7532	1.61	5.21
Scenario1	25yr,72hr	B2	92.0032	1.59	5.21
Scenario1	25yr,72hr	B2	92.2532	1.57	5.21
Scenario1	25yr,72hr	B2	92.5032	1.56	5.21
Scenario1	25yr,72hr	B2	92.7532	1.54	5.21
Scenario1	25yr,72hr	B2	93.0032	1.52	5.21
Scenario1	25yr,72hr	B2	93.2532	1.51	5.21
Scenario1	25yr,72hr	B2	93.5032	1.49	5.21
Scenario1	25yr,72hr	B2	93.7532	1.48	5.21
Scenario1	25yr,72hr	B2	94.0032	1.46	5.21
Scenario1	25yr,72hr	B2	94.2532	1.45	5.21
Scenario1	25yr,72hr	B2	94.5032	1.43	5.21
Scenario1	25yr,72hr	B2	94.7532	1.42	5.21
Scenario1	25yr,72hr	B2	95.0032	1.40	5.21
Scenario1	25yr,72hr	B2	95.2532	1.39	5.21
Scenario1	25yr,72hr	B2	95.5032	1.38	5.21
Scenario1	25yr,72hr	B2	95.7532	1.37	5.21
Scenario1	25yr,72hr	B2	96.0032	1.35	5.21
Scenario1	25yr,72hr	B2	96.2532	1.34	5.21
Scenario1	25yr,72hr	B2	96.5032	1.33	5.21
Scenario1	25yr,72hr	B2	96.7532	1.32	5.21
Scenario1	25yr,72hr	B2	97.0032	1.31	5.21
Scenario1	25yr,72hr	B2	97.2532	1.30	5.21
Scenario1	25yr,72hr	B2	97.5032	1.29	5.21
Scenario1	25yr,72hr	B2	97.7532	1.28	5.21
Scenario1	25yr,72hr	B2	98.0032	1.27	5.21
Scenario1	25yr,72hr	B2	98.2532	1.26	5.21
Scenario1	25yr,72hr	B2	98.5032	1.25	5.21
Scenario1	25yr,72hr	B2	98.7532	1.24	5.21
Scenario1	25yr,72hr	B2	99.0032	1.24	5.21
Scenario1	25yr,72hr	B2	99.2532	1.23	5.21
Scenario1	25yr,72hr	B2	99.5032	1.22	5.21
Scenario1	25yr,72hr	B2	99.7532	1.22	5.21
Scenario1	25yr,72hr	B2	100.0032	1.21	5.21

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	B2	100.2532	1.20	5.21
Scenario1	25yr,72hr	B2	100.5032	1.20	5.21
Scenario1	25yr,72hr	B2	100.7532	1.19	5.21
Scenario1	25yr,72hr	B2	101.0032	1.19	5.21
Scenario1	25yr,72hr	B2	101.2532	1.18	5.21
Scenario1	25yr,72hr	B2	101.5032	1.18	5.21
Scenario1	25yr,72hr	B2	101.7532	1.17	5.21
Scenario1	25yr,72hr	B2	102.0032	1.17	5.21
Scenario1	25yr,72hr	B2	102.2532	1.16	5.21
Scenario1	25yr,72hr	B2	102.5032	1.16	5.21
Scenario1	25yr,72hr	B2	102.7532	1.16	5.21
Scenario1	25yr,72hr	B2	103.0032	1.15	5.21
Scenario1	25yr,72hr	B2	103.2532	1.15	5.21
Scenario1	25yr,72hr	B2	103.5032	1.14	5.21
Scenario1	25yr,72hr	B2	103.7532	1.14	5.21
Scenario1	25yr,72hr	B2	104.0032	1.14	5.21
Scenario1	25yr,72hr	B2	104.2532	1.14	5.21
Scenario1	25yr,72hr	B2	104.5032	1.13	5.21
Scenario1	25yr,72hr	B2	104.7532	1.13	5.21
Scenario1	25yr,72hr	B2	105.0032	1.13	5.21
Scenario1	25yr,72hr	B2	105.2532	1.12	5.21
Scenario1	25yr,72hr	B2	105.5032	1.12	5.21
Scenario1	25yr,72hr	B2	105.7532	1.12	5.21
Scenario1	25yr,72hr	B2	106.0032	1.12	5.21
Scenario1	25yr,72hr	B2	106.2532	1.11	5.21
Scenario1	25yr,72hr	B2	106.5032	1.11	5.21
Scenario1	25yr,72hr	B2	106.7532	1.11	5.21
Scenario1	25yr,72hr	B2	107.0032	1.11	5.21
Scenario1	25yr,72hr	B2	107.2532	1.11	5.21
Scenario1	25yr,72hr	B2	107.5032	1.10	5.21
Scenario1	25yr,72hr	B2	107.7532	1.10	5.21
Scenario1	25yr,72hr	B2	108.0032	1.10	5.21
Scenario1	25yr,72hr	B2	108.2532	1.10	5.21
Scenario1	25yr,72hr	B2	108.5032	1.10	5.21
Scenario1	25yr,72hr	B2	108.7532	1.10	5.21
Scenario1	25yr,72hr	B2	109.0032	1.09	5.21
Scenario1	25yr,72hr	B2	109.2532	1.09	5.21
Scenario1	25yr,72hr	B2	109.5032	1.09	5.21
Scenario1	25yr,72hr	B2	109.7532	1.09	5.21
Scenario1	25yr,72hr	B2	110.0032	1.09	5.21
Scenario1	25yr,72hr	B2	110.2532	1.09	5.21
Scenario1	25yr,72hr	B2	110.5032	1.09	5.21

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	B2	110.7532	1.09	5.21
Scenario1	25yr,72hr	B2	111.0032	1.08	5.21
Scenario1	25yr,72hr	B2	111.2532	1.08	5.21
Scenario1	25yr,72hr	B2	111.5032	1.08	5.21
Scenario1	25yr,72hr	B2	111.7532	1.08	5.21
Scenario1	25yr,72hr	B2	112.0032	1.08	5.21
Scenario1	25yr,72hr	B2	112.2532	1.08	5.21
Scenario1	25yr,72hr	B2	112.5032	1.08	5.21
Scenario1	25yr,72hr	B2	112.7532	1.08	5.21
Scenario1	25yr,72hr	B2	113.0032	1.08	5.21
Scenario1	25yr,72hr	B2	113.2532	1.07	5.21
Scenario1	25yr,72hr	B2	113.5032	1.07	5.21
Scenario1	25yr,72hr	B2	113.7532	1.07	5.21
Scenario1	25yr,72hr	B2	114.0032	1.07	5.21
Scenario1	25yr,72hr	B2	114.2532	1.07	5.21
Scenario1	25yr,72hr	B2	114.5032	1.07	5.21
Scenario1	25yr,72hr	B2	114.7532	1.07	5.21
Scenario1	25yr,72hr	B2	115.0032	1.07	5.21
Scenario1	25yr,72hr	B2	115.2532	1.07	5.21
Scenario1	25yr,72hr	B2	115.5032	1.07	5.21
Scenario1	25yr,72hr	B2	115.7532	1.07	5.21
Scenario1	25yr,72hr	B2	116.0032	1.07	5.21
Scenario1	25yr,72hr	B2	116.2532	1.06	5.21
Scenario1	25yr,72hr	B2	116.5032	1.06	5.21
Scenario1	25yr,72hr	B2	116.7532	1.06	5.21
Scenario1	25yr,72hr	B2	117.0032	1.06	5.21
Scenario1	25yr,72hr	B2	117.2532	1.06	5.21
Scenario1	25yr,72hr	B2	117.5032	1.06	5.21
Scenario1	25yr,72hr	B2	117.7532	1.06	5.21
Scenario1	25yr,72hr	B2	118.0032	1.06	5.21
Scenario1	25yr,72hr	B2	118.2532	1.06	5.21
Scenario1	25yr,72hr	B2	118.5032	1.06	5.21
Scenario1	25yr,72hr	B2	118.7532	1.06	5.21
Scenario1	25yr,72hr	B2	119.0032	1.06	5.21
Scenario1	25yr,72hr	B2	119.2532	1.06	5.21
Scenario1	25yr,72hr	B2	119.5032	1.06	5.21
Scenario1	25yr,72hr	B2	119.7532	1.06	5.21
Scenario1	25yr,72hr	B2	120.0032	1.06	5.21
Scenario1	25yr,72hr	B3	0.0000	1.00	5.00
Scenario1	25yr,72hr	B3	0.2511	1.00	5.00
Scenario1	25yr,72hr	B3	0.5050	1.00	5.00
Scenario1	25yr,72hr	B3	0.7527	1.00	5.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	B3	1.0027	1.00	5.00
Scenario1	25yr,72hr	B3	1.2527	1.00	5.00
Scenario1	25yr,72hr	B3	1.5027	1.00	5.00
Scenario1	25yr,72hr	B3	1.7527	1.00	5.00
Scenario1	25yr,72hr	B3	2.0027	1.00	5.00
Scenario1	25yr,72hr	B3	2.2527	1.00	5.00
Scenario1	25yr,72hr	B3	2.5027	1.00	5.00
Scenario1	25yr,72hr	B3	2.7527	1.00	5.00
Scenario1	25yr,72hr	B3	3.0027	1.00	5.00
Scenario1	25yr,72hr	B3	3.2527	1.00	5.00
Scenario1	25yr,72hr	B3	3.5027	1.00	5.00
Scenario1	25yr,72hr	B3	3.7527	1.00	5.00
Scenario1	25yr,72hr	B3	4.0027	1.00	5.00
Scenario1	25yr,72hr	B3	4.2527	1.00	5.00
Scenario1	25yr,72hr	B3	4.5027	1.00	5.00
Scenario1	25yr,72hr	B3	4.7527	1.00	5.00
Scenario1	25yr,72hr	B3	5.0027	1.00	5.00
Scenario1	25yr,72hr	B3	5.2527	1.00	5.00
Scenario1	25yr,72hr	B3	5.5027	1.00	5.00
Scenario1	25yr,72hr	B3	5.7527	1.00	5.00
Scenario1	25yr,72hr	B3	6.0027	1.00	5.00
Scenario1	25yr,72hr	B3	6.2527	1.00	5.00
Scenario1	25yr,72hr	B3	6.5027	1.00	5.00
Scenario1	25yr,72hr	B3	6.7527	1.00	5.00
Scenario1	25yr,72hr	B3	7.0027	1.00	5.00
Scenario1	25yr,72hr	B3	7.2527	1.00	5.00
Scenario1	25yr,72hr	B3	7.5027	1.00	5.00
Scenario1	25yr,72hr	B3	7.7527	1.00	5.00
Scenario1	25yr,72hr	B3	8.0027	1.00	5.00
Scenario1	25yr,72hr	B3	8.2527	1.00	5.00
Scenario1	25yr,72hr	B3	8.5027	1.00	5.00
Scenario1	25yr,72hr	B3	8.7527	1.00	5.00
Scenario1	25yr,72hr	B3	9.0027	1.00	5.00
Scenario1	25yr,72hr	B3	9.2527	1.00	5.00
Scenario1	25yr,72hr	B3	9.5027	1.00	5.00
Scenario1	25yr,72hr	B3	9.7527	1.00	5.00
Scenario1	25yr,72hr	B3	10.0027	1.00	5.00
Scenario1	25yr,72hr	B3	10.2527	1.00	5.00
Scenario1	25yr,72hr	B3	10.5027	1.00	5.00
Scenario1	25yr,72hr	B3	10.7527	1.00	5.00
Scenario1	25yr,72hr	B3	11.0027	1.00	5.00
Scenario1	25yr,72hr	B3	11.2527	1.01	5.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	B3	11.5027	1.01	5.00
Scenario1	25yr,72hr	B3	11.7527	1.01	5.00
Scenario1	25yr,72hr	B3	12.0027	1.01	5.00
Scenario1	25yr,72hr	B3	12.2527	1.01	5.00
Scenario1	25yr,72hr	B3	12.5027	1.02	5.00
Scenario1	25yr,72hr	B3	12.7527	1.02	5.00
Scenario1	25yr,72hr	B3	13.0027	1.02	5.00
Scenario1	25yr,72hr	B3	13.2527	1.03	5.00
Scenario1	25yr,72hr	B3	13.5027	1.03	5.00
Scenario1	25yr,72hr	B3	13.7527	1.04	5.00
Scenario1	25yr,72hr	B3	14.0027	1.04	5.00
Scenario1	25yr,72hr	B3	14.2527	1.04	5.00
Scenario1	25yr,72hr	B3	14.5027	1.05	5.00
Scenario1	25yr,72hr	B3	14.7527	1.05	5.00
Scenario1	25yr,72hr	B3	15.0027	1.06	5.00
Scenario1	25yr,72hr	B3	15.2527	1.06	5.00
Scenario1	25yr,72hr	B3	15.5027	1.07	5.00
Scenario1	25yr,72hr	B3	15.7527	1.07	5.00
Scenario1	25yr,72hr	B3	16.0027	1.08	5.00
Scenario1	25yr,72hr	B3	16.2527	1.08	5.00
Scenario1	25yr,72hr	B3	16.5027	1.09	5.00
Scenario1	25yr,72hr	B3	16.7527	1.09	5.00
Scenario1	25yr,72hr	B3	17.0027	1.10	5.00
Scenario1	25yr,72hr	B3	17.2527	1.10	5.00
Scenario1	25yr,72hr	B3	17.5027	1.10	5.00
Scenario1	25yr,72hr	B3	17.7527	1.11	5.00
Scenario1	25yr,72hr	B3	18.0027	1.11	5.00
Scenario1	25yr,72hr	B3	18.2527	1.12	5.00
Scenario1	25yr,72hr	B3	18.5027	1.12	5.00
Scenario1	25yr,72hr	B3	18.7527	1.13	5.00
Scenario1	25yr,72hr	B3	19.0027	1.13	5.00
Scenario1	25yr,72hr	B3	19.2527	1.13	5.00
Scenario1	25yr,72hr	B3	19.5027	1.14	5.00
Scenario1	25yr,72hr	B3	19.7527	1.14	5.00
Scenario1	25yr,72hr	B3	20.0027	1.14	5.00
Scenario1	25yr,72hr	B3	20.2527	1.15	5.00
Scenario1	25yr,72hr	B3	20.5027	1.15	5.00
Scenario1	25yr,72hr	B3	20.7527	1.15	5.00
Scenario1	25yr,72hr	B3	21.0027	1.16	5.00
Scenario1	25yr,72hr	B3	21.2527	1.16	5.00
Scenario1	25yr,72hr	B3	21.5027	1.16	5.00
Scenario1	25yr,72hr	B3	21.7527	1.17	5.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	B3	22.0027	1.17	5.00
Scenario1	25yr,72hr	B3	22.2527	1.17	5.00
Scenario1	25yr,72hr	B3	22.5027	1.17	5.00
Scenario1	25yr,72hr	B3	22.7527	1.18	5.00
Scenario1	25yr,72hr	B3	23.0027	1.18	5.00
Scenario1	25yr,72hr	B3	23.2527	1.18	5.00
Scenario1	25yr,72hr	B3	23.5027	1.18	5.00
Scenario1	25yr,72hr	B3	23.7527	1.19	5.00
Scenario1	25yr,72hr	B3	24.0027	1.19	5.00
Scenario1	25yr,72hr	B3	24.2527	1.19	5.00
Scenario1	25yr,72hr	B3	24.5027	1.20	5.00
Scenario1	25yr,72hr	B3	24.7527	1.20	5.00
Scenario1	25yr,72hr	B3	25.0027	1.21	5.00
Scenario1	25yr,72hr	B3	25.2527	1.22	5.00
Scenario1	25yr,72hr	B3	25.5027	1.22	5.00
Scenario1	25yr,72hr	B3	25.7527	1.23	5.00
Scenario1	25yr,72hr	B3	26.0027	1.24	5.00
Scenario1	25yr,72hr	B3	26.2527	1.24	5.00
Scenario1	25yr,72hr	B3	26.5027	1.25	5.00
Scenario1	25yr,72hr	B3	26.7527	1.25	5.00
Scenario1	25yr,72hr	B3	27.0027	1.26	5.00
Scenario1	25yr,72hr	B3	27.2527	1.26	5.00
Scenario1	25yr,72hr	B3	27.5027	1.27	5.00
Scenario1	25yr,72hr	B3	27.7527	1.27	5.00
Scenario1	25yr,72hr	B3	28.0027	1.27	5.00
Scenario1	25yr,72hr	B3	28.2527	1.28	5.00
Scenario1	25yr,72hr	B3	28.5027	1.28	5.00
Scenario1	25yr,72hr	B3	28.7527	1.28	5.00
Scenario1	25yr,72hr	B3	29.0027	1.29	5.00
Scenario1	25yr,72hr	B3	29.2527	1.29	5.00
Scenario1	25yr,72hr	B3	29.5027	1.29	5.00
Scenario1	25yr,72hr	B3	29.7527	1.30	5.00
Scenario1	25yr,72hr	B3	30.0027	1.30	5.00
Scenario1	25yr,72hr	B3	30.2527	1.30	5.00
Scenario1	25yr,72hr	B3	30.5027	1.30	5.00
Scenario1	25yr,72hr	B3	30.7527	1.31	5.00
Scenario1	25yr,72hr	B3	31.0027	1.31	5.00
Scenario1	25yr,72hr	B3	31.2527	1.31	5.00
Scenario1	25yr,72hr	B3	31.5027	1.31	5.00
Scenario1	25yr,72hr	B3	31.7527	1.32	5.00
Scenario1	25yr,72hr	B3	32.0027	1.32	5.00
Scenario1	25yr,72hr	B3	32.2527	1.32	5.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	B3	32.5027	1.32	5.00
Scenario1	25yr,72hr	B3	32.7527	1.33	5.00
Scenario1	25yr,72hr	B3	33.0027	1.33	5.00
Scenario1	25yr,72hr	B3	33.2527	1.33	5.00
Scenario1	25yr,72hr	B3	33.5027	1.33	5.00
Scenario1	25yr,72hr	B3	33.7527	1.34	5.00
Scenario1	25yr,72hr	B3	34.0027	1.34	5.00
Scenario1	25yr,72hr	B3	34.2527	1.34	5.00
Scenario1	25yr,72hr	B3	34.5027	1.35	5.00
Scenario1	25yr,72hr	B3	34.7527	1.35	5.00
Scenario1	25yr,72hr	B3	35.0027	1.35	5.00
Scenario1	25yr,72hr	B3	35.2527	1.35	5.00
Scenario1	25yr,72hr	B3	35.5027	1.36	5.00
Scenario1	25yr,72hr	B3	35.7527	1.36	5.00
Scenario1	25yr,72hr	B3	36.0027	1.36	5.00
Scenario1	25yr,72hr	B3	36.2527	1.36	5.00
Scenario1	25yr,72hr	B3	36.5027	1.37	5.00
Scenario1	25yr,72hr	B3	36.7527	1.37	5.00
Scenario1	25yr,72hr	B3	37.0027	1.37	5.00
Scenario1	25yr,72hr	B3	37.2527	1.38	5.00
Scenario1	25yr,72hr	B3	37.5027	1.38	5.00
Scenario1	25yr,72hr	B3	37.7527	1.38	5.00
Scenario1	25yr,72hr	B3	38.0027	1.39	5.00
Scenario1	25yr,72hr	B3	38.2527	1.39	5.00
Scenario1	25yr,72hr	B3	38.5027	1.39	5.00
Scenario1	25yr,72hr	B3	38.7527	1.39	5.00
Scenario1	25yr,72hr	B3	39.0027	1.40	5.00
Scenario1	25yr,72hr	B3	39.2527	1.40	5.00
Scenario1	25yr,72hr	B3	39.5027	1.40	5.00
Scenario1	25yr,72hr	B3	39.7527	1.40	5.00
Scenario1	25yr,72hr	B3	40.0027	1.41	5.00
Scenario1	25yr,72hr	B3	40.2527	1.41	5.00
Scenario1	25yr,72hr	B3	40.5027	1.41	5.00
Scenario1	25yr,72hr	B3	40.7527	1.41	5.00
Scenario1	25yr,72hr	B3	41.0027	1.42	5.00
Scenario1	25yr,72hr	B3	41.2527	1.42	5.00
Scenario1	25yr,72hr	B3	41.5027	1.42	5.00
Scenario1	25yr,72hr	B3	41.7527	1.42	5.00
Scenario1	25yr,72hr	B3	42.0027	1.43	5.00
Scenario1	25yr,72hr	B3	42.2527	1.43	5.00
Scenario1	25yr,72hr	B3	42.5027	1.43	5.00
Scenario1	25yr,72hr	B3	42.7527	1.43	5.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	B3	43.0027	1.44	5.00
Scenario1	25yr,72hr	B3	43.2527	1.44	5.00
Scenario1	25yr,72hr	B3	43.5027	1.44	5.00
Scenario1	25yr,72hr	B3	43.7527	1.44	5.00
Scenario1	25yr,72hr	B3	44.0027	1.45	5.00
Scenario1	25yr,72hr	B3	44.2527	1.45	5.00
Scenario1	25yr,72hr	B3	44.5027	1.45	5.00
Scenario1	25yr,72hr	B3	44.7527	1.45	5.00
Scenario1	25yr,72hr	B3	45.0027	1.46	5.00
Scenario1	25yr,72hr	B3	45.2527	1.46	5.00
Scenario1	25yr,72hr	B3	45.5027	1.46	5.00
Scenario1	25yr,72hr	B3	45.7527	1.46	5.00
Scenario1	25yr,72hr	B3	46.0027	1.46	5.00
Scenario1	25yr,72hr	B3	46.2527	1.47	5.00
Scenario1	25yr,72hr	B3	46.5027	1.47	5.00
Scenario1	25yr,72hr	B3	46.7527	1.47	5.00
Scenario1	25yr,72hr	B3	47.0027	1.47	5.00
Scenario1	25yr,72hr	B3	47.2527	1.48	5.00
Scenario1	25yr,72hr	B3	47.5027	1.48	5.00
Scenario1	25yr,72hr	B3	47.7527	1.48	5.00
Scenario1	25yr,72hr	B3	48.0027	1.48	5.00
Scenario1	25yr,72hr	B3	48.2527	1.48	5.00
Scenario1	25yr,72hr	B3	48.5027	1.49	5.00
Scenario1	25yr,72hr	B3	48.7527	1.49	5.00
Scenario1	25yr,72hr	B3	49.0027	1.50	5.00
Scenario1	25yr,72hr	B3	49.2527	1.51	5.00
Scenario1	25yr,72hr	B3	49.5027	1.51	5.00
Scenario1	25yr,72hr	B3	49.7527	1.52	5.00
Scenario1	25yr,72hr	B3	50.0027	1.52	5.00
Scenario1	25yr,72hr	B3	50.2527	1.53	5.00
Scenario1	25yr,72hr	B3	50.5027	1.54	5.00
Scenario1	25yr,72hr	B3	50.7527	1.55	5.00
Scenario1	25yr,72hr	B3	51.0027	1.56	5.00
Scenario1	25yr,72hr	B3	51.2527	1.57	5.00
Scenario1	25yr,72hr	B3	51.5027	1.59	5.00
Scenario1	25yr,72hr	B3	51.7527	1.60	5.00
Scenario1	25yr,72hr	B3	52.0027	1.62	5.00
Scenario1	25yr,72hr	B3	52.2527	1.63	5.00
Scenario1	25yr,72hr	B3	52.5027	1.66	5.00
Scenario1	25yr,72hr	B3	52.7527	1.69	5.00
Scenario1	25yr,72hr	B3	53.0027	1.71	5.00
Scenario1	25yr,72hr	B3	53.2536	1.74	5.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	B3	53.5035	1.78	5.00
Scenario1	25yr,72hr	B3	53.7518	1.82	5.00
Scenario1	25yr,72hr	B3	54.0007	1.86	5.00
Scenario1	25yr,72hr	B3	54.2532	1.90	5.00
Scenario1	25yr,72hr	B3	54.5003	1.95	5.00
Scenario1	25yr,72hr	B3	54.7521	2.00	5.00
Scenario1	25yr,72hr	B3	55.0027	2.05	5.00
Scenario1	25yr,72hr	B3	55.2524	2.10	5.00
Scenario1	25yr,72hr	B3	55.5020	2.16	5.00
Scenario1	25yr,72hr	B3	55.7514	2.22	5.00
Scenario1	25yr,72hr	B3	56.0023	2.29	5.00
Scenario1	25yr,72hr	B3	56.2522	2.35	5.00
Scenario1	25yr,72hr	B3	56.5010	2.43	5.00
Scenario1	25yr,72hr	B3	56.7524	2.50	5.00
Scenario1	25yr,72hr	B3	57.0016	2.58	5.00
Scenario1	25yr,72hr	B3	57.2518	2.66	5.00
Scenario1	25yr,72hr	B3	57.5024	2.75	5.00
Scenario1	25yr,72hr	B3	57.7508	2.85	5.00
Scenario1	25yr,72hr	B3	58.0005	2.95	5.00
Scenario1	25yr,72hr	B3	58.2505	3.05	5.00
Scenario1	25yr,72hr	B3	58.5018	3.16	5.00
Scenario1	25yr,72hr	B3	58.7512	3.29	5.00
Scenario1	25yr,72hr	B3	59.0005	3.45	5.00
Scenario1	25yr,72hr	B3	59.2504	3.65	5.00
Scenario1	25yr,72hr	B3	59.5001	3.89	5.00
Scenario1	25yr,72hr	B3	59.7501	4.32	5.00
Scenario1	25yr,72hr	B3	60.0001	4.62	5.00
Scenario1	25yr,72hr	B3	60.2508	4.68	5.00
Scenario1	25yr,72hr	B3	60.5012	4.58	5.00
Scenario1	25yr,72hr	B3	60.7508	4.45	5.00
Scenario1	25yr,72hr	B3	61.0013	4.33	5.00
Scenario1	25yr,72hr	B3	61.2502	4.24	5.00
Scenario1	25yr,72hr	B3	61.5001	4.19	5.00
Scenario1	25yr,72hr	B3	61.7505	4.16	5.00
Scenario1	25yr,72hr	B3	62.0003	4.14	5.00
Scenario1	25yr,72hr	B3	62.2503	4.12	5.00
Scenario1	25yr,72hr	B3	62.5003	4.10	5.00
Scenario1	25yr,72hr	B3	62.7502	4.08	5.00
Scenario1	25yr,72hr	B3	63.0008	4.07	5.00
Scenario1	25yr,72hr	B3	63.2503	4.07	5.00
Scenario1	25yr,72hr	B3	63.5042	4.06	5.00
Scenario1	25yr,72hr	B3	63.7578	4.06	5.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	B3	64.0078	4.06	5.00
Scenario1	25yr,72hr	B3	64.2508	4.05	5.00
Scenario1	25yr,72hr	B3	64.5063	4.03	5.00
Scenario1	25yr,72hr	B3	64.7563	4.02	5.00
Scenario1	25yr,72hr	B3	65.0063	4.01	5.00
Scenario1	25yr,72hr	B3	65.2563	4.00	5.00
Scenario1	25yr,72hr	B3	65.5063	3.99	5.00
Scenario1	25yr,72hr	B3	65.7563	3.98	5.00
Scenario1	25yr,72hr	B3	66.0063	3.98	5.00
Scenario1	25yr,72hr	B3	66.2563	3.97	5.00
Scenario1	25yr,72hr	B3	66.5063	3.96	5.00
Scenario1	25yr,72hr	B3	66.7563	3.95	5.00
Scenario1	25yr,72hr	B3	67.0063	3.95	5.00
Scenario1	25yr,72hr	B3	67.2563	3.94	5.00
Scenario1	25yr,72hr	B3	67.5063	3.93	5.00
Scenario1	25yr,72hr	B3	67.7563	3.93	5.00
Scenario1	25yr,72hr	B3	68.0063	3.92	5.00
Scenario1	25yr,72hr	B3	68.2563	3.91	5.00
Scenario1	25yr,72hr	B3	68.5063	3.88	5.00
Scenario1	25yr,72hr	B3	68.7563	3.86	5.00
Scenario1	25yr,72hr	B3	69.0063	3.83	5.00
Scenario1	25yr,72hr	B3	69.2563	3.80	5.00
Scenario1	25yr,72hr	B3	69.5063	3.77	5.00
Scenario1	25yr,72hr	B3	69.7563	3.75	5.00
Scenario1	25yr,72hr	B3	70.0063	3.72	5.00
Scenario1	25yr,72hr	B3	70.2563	3.69	5.00
Scenario1	25yr,72hr	B3	70.5063	3.66	5.00
Scenario1	25yr,72hr	B3	70.7563	3.64	5.00
Scenario1	25yr,72hr	B3	71.0063	3.61	5.00
Scenario1	25yr,72hr	B3	71.2563	3.58	5.00
Scenario1	25yr,72hr	B3	71.5063	3.55	5.00
Scenario1	25yr,72hr	B3	71.7563	3.53	5.00
Scenario1	25yr,72hr	B3	72.0063	3.50	5.00
Scenario1	25yr,72hr	B3	72.2530	3.46	5.00
Scenario1	25yr,72hr	B3	72.5004	3.39	5.00
Scenario1	25yr,72hr	B3	72.7516	3.32	5.00
Scenario1	25yr,72hr	B3	73.0018	3.24	5.00
Scenario1	25yr,72hr	B3	73.2518	3.17	5.00
Scenario1	25yr,72hr	B3	73.5009	3.10	5.00
Scenario1	25yr,72hr	B3	73.7518	3.02	5.00
Scenario1	25yr,72hr	B3	74.0019	2.95	5.00
Scenario1	25yr,72hr	B3	74.2507	2.88	5.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	B3	74.5004	2.82	5.00
Scenario1	25yr,72hr	B3	74.7518	2.75	5.00
Scenario1	25yr,72hr	B3	75.0030	2.68	5.00
Scenario1	25yr,72hr	B3	75.2513	2.61	5.00
Scenario1	25yr,72hr	B3	75.5035	2.54	5.00
Scenario1	25yr,72hr	B3	75.7533	2.47	5.00
Scenario1	25yr,72hr	B3	76.0009	2.41	5.00
Scenario1	25yr,72hr	B3	76.2515	2.35	5.00
Scenario1	25yr,72hr	B3	76.5038	2.28	5.00
Scenario1	25yr,72hr	B3	76.7537	2.22	5.00
Scenario1	25yr,72hr	B3	77.0010	2.16	5.00
Scenario1	25yr,72hr	B3	77.2536	2.11	5.00
Scenario1	25yr,72hr	B3	77.5021	2.05	5.00
Scenario1	25yr,72hr	B3	77.7543	2.00	5.00
Scenario1	25yr,72hr	B3	78.0031	1.95	5.00
Scenario1	25yr,72hr	B3	78.2520	1.90	5.00
Scenario1	25yr,72hr	B3	78.5021	1.85	5.00
Scenario1	25yr,72hr	B3	78.7526	1.80	5.00
Scenario1	25yr,72hr	B3	79.0040	1.76	5.00
Scenario1	25yr,72hr	B3	79.2507	1.72	5.00
Scenario1	25yr,72hr	B3	79.5002	1.67	5.00
Scenario1	25yr,72hr	B3	79.7504	1.63	5.00
Scenario1	25yr,72hr	B3	80.0009	1.60	5.00
Scenario1	25yr,72hr	B3	80.2522	1.56	5.00
Scenario1	25yr,72hr	B3	80.5014	1.52	5.00
Scenario1	25yr,72hr	B3	80.7501	1.49	5.00
Scenario1	25yr,72hr	B3	81.0049	1.46	5.00
Scenario1	25yr,72hr	B3	81.2548	1.43	5.00
Scenario1	25yr,72hr	B3	81.5052	1.40	5.00
Scenario1	25yr,72hr	B3	81.7557	1.37	5.00
Scenario1	25yr,72hr	B3	82.0061	1.35	5.00
Scenario1	25yr,72hr	B3	82.2561	1.32	5.00
Scenario1	25yr,72hr	B3	82.5052	1.30	5.00
Scenario1	25yr,72hr	B3	82.7515	1.28	5.00
Scenario1	25yr,72hr	B3	83.0038	1.26	5.00
Scenario1	25yr,72hr	B3	83.2560	1.25	5.00
Scenario1	25yr,72hr	B3	83.5012	1.23	5.00
Scenario1	25yr,72hr	B3	83.7564	1.22	5.00
Scenario1	25yr,72hr	B3	84.0015	1.21	5.00
Scenario1	25yr,72hr	B3	84.2565	1.19	5.00
Scenario1	25yr,72hr	B3	84.5032	1.18	5.00
Scenario1	25yr,72hr	B3	84.7532	1.17	5.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	B3	85.0032	1.17	5.00
Scenario1	25yr,72hr	B3	85.2532	1.16	5.00
Scenario1	25yr,72hr	B3	85.5032	1.15	5.00
Scenario1	25yr,72hr	B3	85.7532	1.14	5.00
Scenario1	25yr,72hr	B3	86.0032	1.14	5.00
Scenario1	25yr,72hr	B3	86.2532	1.13	5.00
Scenario1	25yr,72hr	B3	86.5032	1.13	5.00
Scenario1	25yr,72hr	B3	86.7532	1.12	5.00
Scenario1	25yr,72hr	B3	87.0032	1.12	5.00
Scenario1	25yr,72hr	B3	87.2532	1.11	5.00
Scenario1	25yr,72hr	B3	87.5032	1.11	5.00
Scenario1	25yr,72hr	B3	87.7532	1.11	5.00
Scenario1	25yr,72hr	B3	88.0032	1.10	5.00
Scenario1	25yr,72hr	B3	88.2532	1.10	5.00
Scenario1	25yr,72hr	B3	88.5032	1.10	5.00
Scenario1	25yr,72hr	B3	88.7532	1.09	5.00
Scenario1	25yr,72hr	B3	89.0032	1.09	5.00
Scenario1	25yr,72hr	B3	89.2532	1.09	5.00
Scenario1	25yr,72hr	B3	89.5032	1.09	5.00
Scenario1	25yr,72hr	B3	89.7532	1.08	5.00
Scenario1	25yr,72hr	B3	90.0032	1.08	5.00
Scenario1	25yr,72hr	B3	90.2532	1.08	5.00
Scenario1	25yr,72hr	B3	90.5032	1.08	5.00
Scenario1	25yr,72hr	B3	90.7532	1.07	5.00
Scenario1	25yr,72hr	B3	91.0032	1.07	5.00
Scenario1	25yr,72hr	B3	91.2532	1.07	5.00
Scenario1	25yr,72hr	B3	91.5032	1.07	5.00
Scenario1	25yr,72hr	B3	91.7532	1.07	5.00
Scenario1	25yr,72hr	B3	92.0032	1.07	5.00
Scenario1	25yr,72hr	B3	92.2532	1.07	5.00
Scenario1	25yr,72hr	B3	92.5032	1.06	5.00
Scenario1	25yr,72hr	B3	92.7532	1.06	5.00
Scenario1	25yr,72hr	B3	93.0032	1.06	5.00
Scenario1	25yr,72hr	B3	93.2532	1.06	5.00
Scenario1	25yr,72hr	B3	93.5032	1.06	5.00
Scenario1	25yr,72hr	B3	93.7532	1.06	5.00
Scenario1	25yr,72hr	B3	94.0032	1.06	5.00
Scenario1	25yr,72hr	B3	94.2532	1.06	5.00
Scenario1	25yr,72hr	B3	94.5032	1.06	5.00
Scenario1	25yr,72hr	B3	94.7532	1.05	5.00
Scenario1	25yr,72hr	B3	95.0032	1.05	5.00
Scenario1	25yr,72hr	B3	95.2532	1.05	5.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	B3	95.5032	1.05	5.00
Scenario1	25yr,72hr	B3	95.7532	1.05	5.00
Scenario1	25yr,72hr	B3	96.0032	1.05	5.00
Scenario1	25yr,72hr	B3	96.2532	1.05	5.00
Scenario1	25yr,72hr	B3	96.5032	1.05	5.00
Scenario1	25yr,72hr	B3	96.7532	1.05	5.00
Scenario1	25yr,72hr	B3	97.0032	1.05	5.00
Scenario1	25yr,72hr	B3	97.2532	1.05	5.00
Scenario1	25yr,72hr	B3	97.5032	1.05	5.00
Scenario1	25yr,72hr	B3	97.7532	1.05	5.00
Scenario1	25yr,72hr	B3	98.0032	1.04	5.00
Scenario1	25yr,72hr	B3	98.2532	1.04	5.00
Scenario1	25yr,72hr	B3	98.5032	1.04	5.00
Scenario1	25yr,72hr	B3	98.7532	1.04	5.00
Scenario1	25yr,72hr	B3	99.0032	1.04	5.00
Scenario1	25yr,72hr	B3	99.2532	1.04	5.00
Scenario1	25yr,72hr	B3	99.5032	1.04	5.00
Scenario1	25yr,72hr	B3	99.7532	1.04	5.00
Scenario1	25yr,72hr	B3	100.0032	1.04	5.00
Scenario1	25yr,72hr	B3	100.2532	1.04	5.00
Scenario1	25yr,72hr	B3	100.5032	1.04	5.00
Scenario1	25yr,72hr	B3	100.7532	1.04	5.00
Scenario1	25yr,72hr	B3	101.0032	1.04	5.00
Scenario1	25yr,72hr	B3	101.2532	1.04	5.00
Scenario1	25yr,72hr	B3	101.5032	1.04	5.00
Scenario1	25yr,72hr	B3	101.7532	1.04	5.00
Scenario1	25yr,72hr	B3	102.0032	1.04	5.00
Scenario1	25yr,72hr	B3	102.2532	1.04	5.00
Scenario1	25yr,72hr	B3	102.5032	1.04	5.00
Scenario1	25yr,72hr	B3	102.7532	1.04	5.00
Scenario1	25yr,72hr	B3	103.0032	1.03	5.00
Scenario1	25yr,72hr	B3	103.2532	1.03	5.00
Scenario1	25yr,72hr	B3	103.5032	1.03	5.00
Scenario1	25yr,72hr	B3	103.7532	1.03	5.00
Scenario1	25yr,72hr	B3	104.0032	1.03	5.00
Scenario1	25yr,72hr	B3	104.2532	1.03	5.00
Scenario1	25yr,72hr	B3	104.5032	1.03	5.00
Scenario1	25yr,72hr	B3	104.7532	1.03	5.00
Scenario1	25yr,72hr	B3	105.0032	1.03	5.00
Scenario1	25yr,72hr	B3	105.2532	1.03	5.00
Scenario1	25yr,72hr	B3	105.5032	1.03	5.00
Scenario1	25yr,72hr	B3	105.7532	1.03	5.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	B3	106.0032	1.03	5.00
Scenario1	25yr,72hr	B3	106.2532	1.03	5.00
Scenario1	25yr,72hr	B3	106.5032	1.03	5.00
Scenario1	25yr,72hr	B3	106.7532	1.03	5.00
Scenario1	25yr,72hr	B3	107.0032	1.03	5.00
Scenario1	25yr,72hr	B3	107.2532	1.03	5.00
Scenario1	25yr,72hr	B3	107.5032	1.03	5.00
Scenario1	25yr,72hr	B3	107.7532	1.03	5.00
Scenario1	25yr,72hr	B3	108.0032	1.03	5.00
Scenario1	25yr,72hr	B3	108.2532	1.03	5.00
Scenario1	25yr,72hr	B3	108.5032	1.03	5.00
Scenario1	25yr,72hr	B3	108.7532	1.03	5.00
Scenario1	25yr,72hr	B3	109.0032	1.03	5.00
Scenario1	25yr,72hr	B3	109.2532	1.03	5.00
Scenario1	25yr,72hr	B3	109.5032	1.03	5.00
Scenario1	25yr,72hr	B3	109.7532	1.03	5.00
Scenario1	25yr,72hr	B3	110.0032	1.03	5.00
Scenario1	25yr,72hr	B3	110.2532	1.03	5.00
Scenario1	25yr,72hr	B3	110.5032	1.03	5.00
Scenario1	25yr,72hr	B3	110.7532	1.03	5.00
Scenario1	25yr,72hr	B3	111.0032	1.03	5.00
Scenario1	25yr,72hr	B3	111.2532	1.03	5.00
Scenario1	25yr,72hr	B3	111.5032	1.03	5.00
Scenario1	25yr,72hr	B3	111.7532	1.03	5.00
Scenario1	25yr,72hr	B3	112.0032	1.03	5.00
Scenario1	25yr,72hr	B3	112.2532	1.02	5.00
Scenario1	25yr,72hr	B3	112.5032	1.02	5.00
Scenario1	25yr,72hr	B3	112.7532	1.02	5.00
Scenario1	25yr,72hr	B3	113.0032	1.02	5.00
Scenario1	25yr,72hr	B3	113.2532	1.02	5.00
Scenario1	25yr,72hr	B3	113.5032	1.02	5.00
Scenario1	25yr,72hr	B3	113.7532	1.02	5.00
Scenario1	25yr,72hr	B3	114.0032	1.02	5.00
Scenario1	25yr,72hr	B3	114.2532	1.02	5.00
Scenario1	25yr,72hr	B3	114.5032	1.02	5.00
Scenario1	25yr,72hr	B3	114.7532	1.02	5.00
Scenario1	25yr,72hr	B3	115.0032	1.02	5.00
Scenario1	25yr,72hr	B3	115.2532	1.02	5.00
Scenario1	25yr,72hr	B3	115.5032	1.02	5.00
Scenario1	25yr,72hr	B3	115.7532	1.02	5.00
Scenario1	25yr,72hr	B3	116.0032	1.02	5.00
Scenario1	25yr,72hr	B3	116.2532	1.02	5.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	B3	116.5032	1.02	5.00
Scenario1	25yr,72hr	B3	116.7532	1.02	5.00
Scenario1	25yr,72hr	B3	117.0032	1.02	5.00
Scenario1	25yr,72hr	B3	117.2532	1.02	5.00
Scenario1	25yr,72hr	B3	117.5032	1.02	5.00
Scenario1	25yr,72hr	B3	117.7532	1.02	5.00
Scenario1	25yr,72hr	B3	118.0032	1.02	5.00
Scenario1	25yr,72hr	B3	118.2532	1.02	5.00
Scenario1	25yr,72hr	B3	118.5032	1.02	5.00
Scenario1	25yr,72hr	B3	118.7532	1.02	5.00
Scenario1	25yr,72hr	B3	119.0032	1.02	5.00
Scenario1	25yr,72hr	B3	119.2532	1.02	5.00
Scenario1	25yr,72hr	B3	119.5032	1.02	5.00
Scenario1	25yr,72hr	B3	119.7532	1.02	5.00
Scenario1	25yr,72hr	B3	120.0032	1.02	5.00
Scenario1	25yr,72hr	Tail Water	0.0000	1.00	999.00
Scenario1	25yr,72hr	Tail Water	0.2511	1.00	999.00
Scenario1	25yr,72hr	Tail Water	0.5050	1.00	999.00
Scenario1	25yr,72hr	Tail Water	0.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	1.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	1.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	1.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	1.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	2.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	2.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	2.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	2.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	3.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	3.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	3.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	3.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	4.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	4.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	4.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	4.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	5.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	5.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	5.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	5.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	6.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	6.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	6.5027	1.00	999.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	Tail Water	6.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	7.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	7.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	7.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	7.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	8.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	8.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	8.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	8.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	9.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	9.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	9.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	9.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	10.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	10.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	10.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	10.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	11.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	11.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	11.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	11.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	12.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	12.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	12.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	12.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	13.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	13.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	13.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	13.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	14.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	14.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	14.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	14.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	15.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	15.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	15.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	15.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	16.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	16.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	16.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	16.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	17.0027	1.00	999.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	Tail Water	17.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	17.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	17.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	18.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	18.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	18.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	18.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	19.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	19.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	19.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	19.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	20.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	20.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	20.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	20.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	21.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	21.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	21.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	21.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	22.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	22.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	22.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	22.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	23.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	23.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	23.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	23.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	24.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	24.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	24.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	24.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	25.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	25.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	25.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	25.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	26.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	26.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	26.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	26.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	27.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	27.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	27.5027	1.00	999.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	Tail Water	27.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	28.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	28.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	28.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	28.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	29.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	29.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	29.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	29.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	30.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	30.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	30.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	30.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	31.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	31.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	31.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	31.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	32.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	32.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	32.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	32.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	33.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	33.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	33.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	33.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	34.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	34.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	34.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	34.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	35.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	35.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	35.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	35.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	36.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	36.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	36.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	36.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	37.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	37.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	37.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	37.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	38.0027	1.00	999.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	Tail Water	38.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	38.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	38.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	39.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	39.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	39.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	39.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	40.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	40.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	40.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	40.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	41.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	41.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	41.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	41.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	42.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	42.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	42.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	42.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	43.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	43.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	43.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	43.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	44.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	44.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	44.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	44.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	45.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	45.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	45.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	45.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	46.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	46.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	46.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	46.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	47.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	47.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	47.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	47.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	48.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	48.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	48.5027	1.00	999.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	Tail Water	48.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	49.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	49.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	49.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	49.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	50.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	50.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	50.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	50.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	51.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	51.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	51.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	51.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	52.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	52.2527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	52.5027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	52.7527	1.00	999.00
Scenario1	25yr,72hr	Tail Water	53.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	53.2536	1.00	999.00
Scenario1	25yr,72hr	Tail Water	53.5035	1.00	999.00
Scenario1	25yr,72hr	Tail Water	53.7518	1.00	999.00
Scenario1	25yr,72hr	Tail Water	54.0007	1.00	999.00
Scenario1	25yr,72hr	Tail Water	54.2532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	54.5003	1.00	999.00
Scenario1	25yr,72hr	Tail Water	54.7521	1.00	999.00
Scenario1	25yr,72hr	Tail Water	55.0027	1.00	999.00
Scenario1	25yr,72hr	Tail Water	55.2524	1.00	999.00
Scenario1	25yr,72hr	Tail Water	55.5020	1.00	999.00
Scenario1	25yr,72hr	Tail Water	55.7514	1.00	999.00
Scenario1	25yr,72hr	Tail Water	56.0023	1.00	999.00
Scenario1	25yr,72hr	Tail Water	56.2522	1.00	999.00
Scenario1	25yr,72hr	Tail Water	56.5010	1.00	999.00
Scenario1	25yr,72hr	Tail Water	56.7524	1.00	999.00
Scenario1	25yr,72hr	Tail Water	57.0016	1.00	999.00
Scenario1	25yr,72hr	Tail Water	57.2518	1.00	999.00
Scenario1	25yr,72hr	Tail Water	57.5024	1.00	999.00
Scenario1	25yr,72hr	Tail Water	57.7508	1.00	999.00
Scenario1	25yr,72hr	Tail Water	58.0005	1.00	999.00
Scenario1	25yr,72hr	Tail Water	58.2505	1.00	999.00
Scenario1	25yr,72hr	Tail Water	58.5018	1.00	999.00
Scenario1	25yr,72hr	Tail Water	58.7512	1.00	999.00
Scenario1	25yr,72hr	Tail Water	59.0005	1.00	999.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	Tail Water	59.2504	1.00	999.00
Scenario1	25yr,72hr	Tail Water	59.5001	1.00	999.00
Scenario1	25yr,72hr	Tail Water	59.7501	1.00	999.00
Scenario1	25yr,72hr	Tail Water	60.0001	1.00	999.00
Scenario1	25yr,72hr	Tail Water	60.2508	1.00	999.00
Scenario1	25yr,72hr	Tail Water	60.5012	1.00	999.00
Scenario1	25yr,72hr	Tail Water	60.7508	1.00	999.00
Scenario1	25yr,72hr	Tail Water	61.0013	1.00	999.00
Scenario1	25yr,72hr	Tail Water	61.2502	1.00	999.00
Scenario1	25yr,72hr	Tail Water	61.5001	1.00	999.00
Scenario1	25yr,72hr	Tail Water	61.7505	1.00	999.00
Scenario1	25yr,72hr	Tail Water	62.0003	1.00	999.00
Scenario1	25yr,72hr	Tail Water	62.2503	1.00	999.00
Scenario1	25yr,72hr	Tail Water	62.5003	1.00	999.00
Scenario1	25yr,72hr	Tail Water	62.7502	1.00	999.00
Scenario1	25yr,72hr	Tail Water	63.0008	1.00	999.00
Scenario1	25yr,72hr	Tail Water	63.2503	1.00	999.00
Scenario1	25yr,72hr	Tail Water	63.5042	1.00	999.00
Scenario1	25yr,72hr	Tail Water	63.7578	1.00	999.00
Scenario1	25yr,72hr	Tail Water	64.0078	1.00	999.00
Scenario1	25yr,72hr	Tail Water	64.2508	1.00	999.00
Scenario1	25yr,72hr	Tail Water	64.5063	1.00	999.00
Scenario1	25yr,72hr	Tail Water	64.7563	1.00	999.00
Scenario1	25yr,72hr	Tail Water	65.0063	1.00	999.00
Scenario1	25yr,72hr	Tail Water	65.2563	1.00	999.00
Scenario1	25yr,72hr	Tail Water	65.5063	1.00	999.00
Scenario1	25yr,72hr	Tail Water	65.7563	1.00	999.00
Scenario1	25yr,72hr	Tail Water	66.0063	1.00	999.00
Scenario1	25yr,72hr	Tail Water	66.2563	1.00	999.00
Scenario1	25yr,72hr	Tail Water	66.5063	1.00	999.00
Scenario1	25yr,72hr	Tail Water	66.7563	1.00	999.00
Scenario1	25yr,72hr	Tail Water	67.0063	1.00	999.00
Scenario1	25yr,72hr	Tail Water	67.2563	1.00	999.00
Scenario1	25yr,72hr	Tail Water	67.5063	1.00	999.00
Scenario1	25yr,72hr	Tail Water	67.7563	1.00	999.00
Scenario1	25yr,72hr	Tail Water	68.0063	1.00	999.00
Scenario1	25yr,72hr	Tail Water	68.2563	1.00	999.00
Scenario1	25yr,72hr	Tail Water	68.5063	1.00	999.00
Scenario1	25yr,72hr	Tail Water	68.7563	1.00	999.00
Scenario1	25yr,72hr	Tail Water	69.0063	1.00	999.00
Scenario1	25yr,72hr	Tail Water	69.2563	1.00	999.00
Scenario1	25yr,72hr	Tail Water	69.5063	1.00	999.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	Tail Water	69.7563	1.00	999.00
Scenario1	25yr,72hr	Tail Water	70.0063	1.00	999.00
Scenario1	25yr,72hr	Tail Water	70.2563	1.00	999.00
Scenario1	25yr,72hr	Tail Water	70.5063	1.00	999.00
Scenario1	25yr,72hr	Tail Water	70.7563	1.00	999.00
Scenario1	25yr,72hr	Tail Water	71.0063	1.00	999.00
Scenario1	25yr,72hr	Tail Water	71.2563	1.00	999.00
Scenario1	25yr,72hr	Tail Water	71.5063	1.00	999.00
Scenario1	25yr,72hr	Tail Water	71.7563	1.00	999.00
Scenario1	25yr,72hr	Tail Water	72.0063	1.00	999.00
Scenario1	25yr,72hr	Tail Water	72.2530	1.00	999.00
Scenario1	25yr,72hr	Tail Water	72.5004	1.00	999.00
Scenario1	25yr,72hr	Tail Water	72.7516	1.00	999.00
Scenario1	25yr,72hr	Tail Water	73.0018	1.00	999.00
Scenario1	25yr,72hr	Tail Water	73.2518	1.00	999.00
Scenario1	25yr,72hr	Tail Water	73.5009	1.00	999.00
Scenario1	25yr,72hr	Tail Water	73.7518	1.00	999.00
Scenario1	25yr,72hr	Tail Water	74.0019	1.00	999.00
Scenario1	25yr,72hr	Tail Water	74.2507	1.00	999.00
Scenario1	25yr,72hr	Tail Water	74.5004	1.00	999.00
Scenario1	25yr,72hr	Tail Water	74.7518	1.00	999.00
Scenario1	25yr,72hr	Tail Water	75.0030	1.00	999.00
Scenario1	25yr,72hr	Tail Water	75.2513	1.00	999.00
Scenario1	25yr,72hr	Tail Water	75.5035	1.00	999.00
Scenario1	25yr,72hr	Tail Water	75.7533	1.00	999.00
Scenario1	25yr,72hr	Tail Water	76.0009	1.00	999.00
Scenario1	25yr,72hr	Tail Water	76.2515	1.00	999.00
Scenario1	25yr,72hr	Tail Water	76.5038	1.00	999.00
Scenario1	25yr,72hr	Tail Water	76.7537	1.00	999.00
Scenario1	25yr,72hr	Tail Water	77.0010	1.00	999.00
Scenario1	25yr,72hr	Tail Water	77.2536	1.00	999.00
Scenario1	25yr,72hr	Tail Water	77.5021	1.00	999.00
Scenario1	25yr,72hr	Tail Water	77.7543	1.00	999.00
Scenario1	25yr,72hr	Tail Water	78.0031	1.00	999.00
Scenario1	25yr,72hr	Tail Water	78.2520	1.00	999.00
Scenario1	25yr,72hr	Tail Water	78.5021	1.00	999.00
Scenario1	25yr,72hr	Tail Water	78.7526	1.00	999.00
Scenario1	25yr,72hr	Tail Water	79.0040	1.00	999.00
Scenario1	25yr,72hr	Tail Water	79.2507	1.00	999.00
Scenario1	25yr,72hr	Tail Water	79.5002	1.00	999.00
Scenario1	25yr,72hr	Tail Water	79.7504	1.00	999.00
Scenario1	25yr,72hr	Tail Water	80.0009	1.00	999.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	Tail Water	80.2522	1.00	999.00
Scenario1	25yr,72hr	Tail Water	80.5014	1.00	999.00
Scenario1	25yr,72hr	Tail Water	80.7501	1.00	999.00
Scenario1	25yr,72hr	Tail Water	81.0049	1.00	999.00
Scenario1	25yr,72hr	Tail Water	81.2548	1.00	999.00
Scenario1	25yr,72hr	Tail Water	81.5052	1.00	999.00
Scenario1	25yr,72hr	Tail Water	81.7557	1.00	999.00
Scenario1	25yr,72hr	Tail Water	82.0061	1.00	999.00
Scenario1	25yr,72hr	Tail Water	82.2561	1.00	999.00
Scenario1	25yr,72hr	Tail Water	82.5052	1.00	999.00
Scenario1	25yr,72hr	Tail Water	82.7515	1.00	999.00
Scenario1	25yr,72hr	Tail Water	83.0038	1.00	999.00
Scenario1	25yr,72hr	Tail Water	83.2560	1.00	999.00
Scenario1	25yr,72hr	Tail Water	83.5012	1.00	999.00
Scenario1	25yr,72hr	Tail Water	83.7564	1.00	999.00
Scenario1	25yr,72hr	Tail Water	84.0015	1.00	999.00
Scenario1	25yr,72hr	Tail Water	84.2565	1.00	999.00
Scenario1	25yr,72hr	Tail Water	84.5032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	84.7532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	85.0032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	85.2532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	85.5032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	85.7532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	86.0032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	86.2532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	86.5032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	86.7532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	87.0032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	87.2532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	87.5032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	87.7532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	88.0032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	88.2532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	88.5032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	88.7532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	89.0032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	89.2532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	89.5032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	89.7532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	90.0032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	90.2532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	90.5032	1.00	999.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	Tail Water	90.7532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	91.0032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	91.2532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	91.5032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	91.7532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	92.0032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	92.2532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	92.5032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	92.7532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	93.0032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	93.2532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	93.5032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	93.7532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	94.0032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	94.2532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	94.5032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	94.7532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	95.0032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	95.2532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	95.5032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	95.7532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	96.0032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	96.2532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	96.5032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	96.7532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	97.0032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	97.2532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	97.5032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	97.7532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	98.0032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	98.2532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	98.5032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	98.7532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	99.0032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	99.2532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	99.5032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	99.7532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	100.0032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	100.2532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	100.5032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	100.7532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	101.0032	1.00	999.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	Tail Water	101.2532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	101.5032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	101.7532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	102.0032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	102.2532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	102.5032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	102.7532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	103.0032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	103.2532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	103.5032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	103.7532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	104.0032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	104.2532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	104.5032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	104.7532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	105.0032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	105.2532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	105.5032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	105.7532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	106.0032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	106.2532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	106.5032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	106.7532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	107.0032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	107.2532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	107.5032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	107.7532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	108.0032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	108.2532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	108.5032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	108.7532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	109.0032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	109.2532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	109.5032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	109.7532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	110.0032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	110.2532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	110.5032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	110.7532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	111.0032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	111.2532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	111.5032	1.00	999.00

Scenario	Sim	Node Name	Relative Time [hrs]	Stage [ft]	Warning Stage [ft]
Scenario1	25yr,72hr	Tail Water	111.7532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	112.0032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	112.2532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	112.5032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	112.7532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	113.0032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	113.2532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	113.5032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	113.7532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	114.0032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	114.2532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	114.5032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	114.7532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	115.0032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	115.2532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	115.5032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	115.7532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	116.0032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	116.2532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	116.5032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	116.7532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	117.0032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	117.2532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	117.5032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	117.7532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	118.0032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	118.2532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	118.5032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	118.7532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	119.0032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	119.2532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	119.5032	1.00	999.00
Scenario1	25yr,72hr	Tail Water	119.7532	1.00	999.00
Scenario1	25yr,72hr	Tail Water	120.0032	1.00	999.00

NODE DIAGRAM

Legend

▲ Proposed Model Basins

Proposed Model Nodes

Type

● Stage/Volume

● Time/Stage

Proposed Model Links

..... Basin

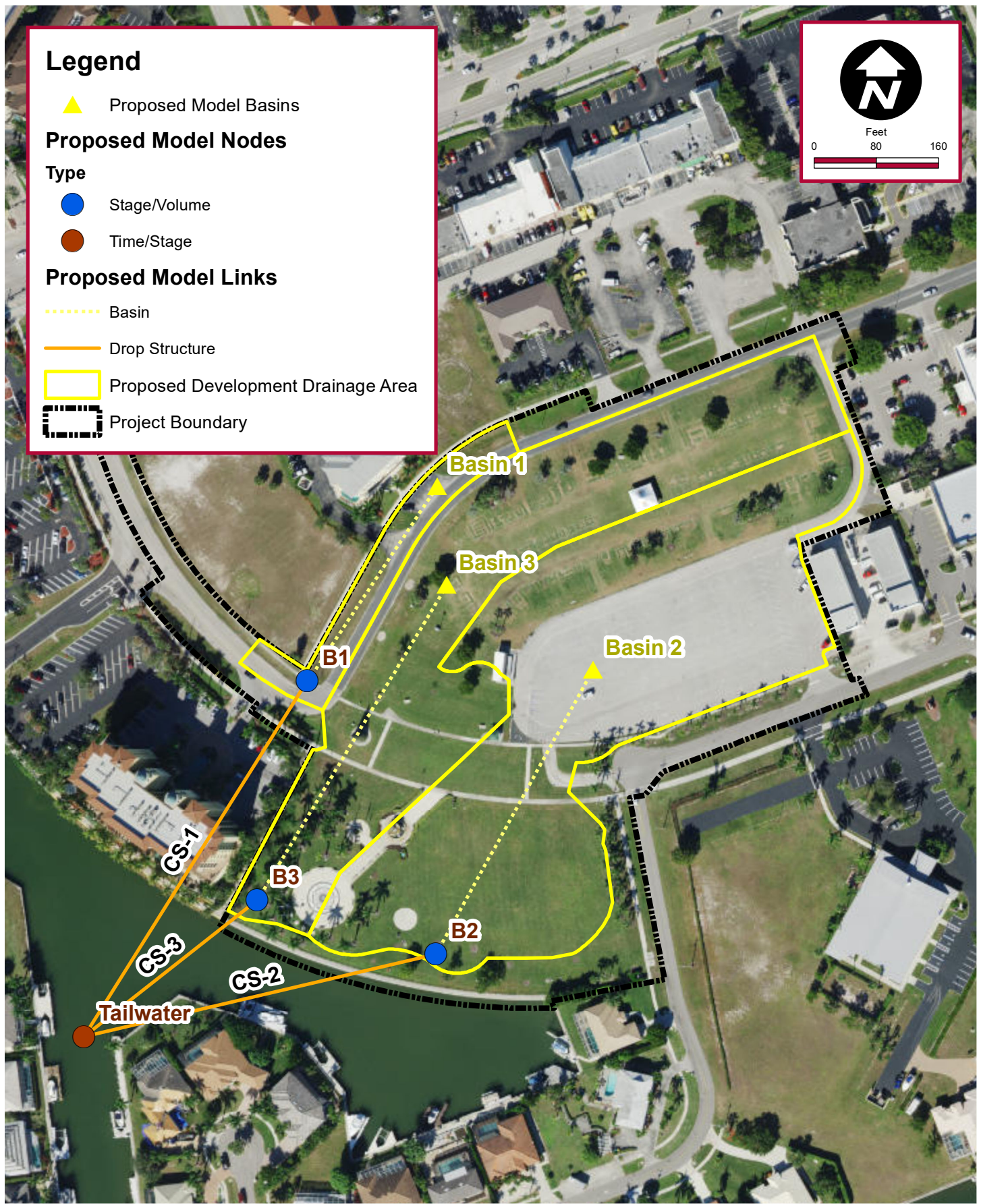
— Drop Structure

□ Proposed Development Drainage Area

▬ Project Boundary



Feet
0 80 160



Kimley»Horn

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1412 Jackson Street, Suite 2, Fort Myers, FL 33901
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www.kimley-horn.com CA 00000696

PROPOSED MODEL NETWORK

VETERANS PARK MARCO ISLAND
COLLIER COUNTY, FLORIDA

Scale: As Noted

Project No.: 048353024

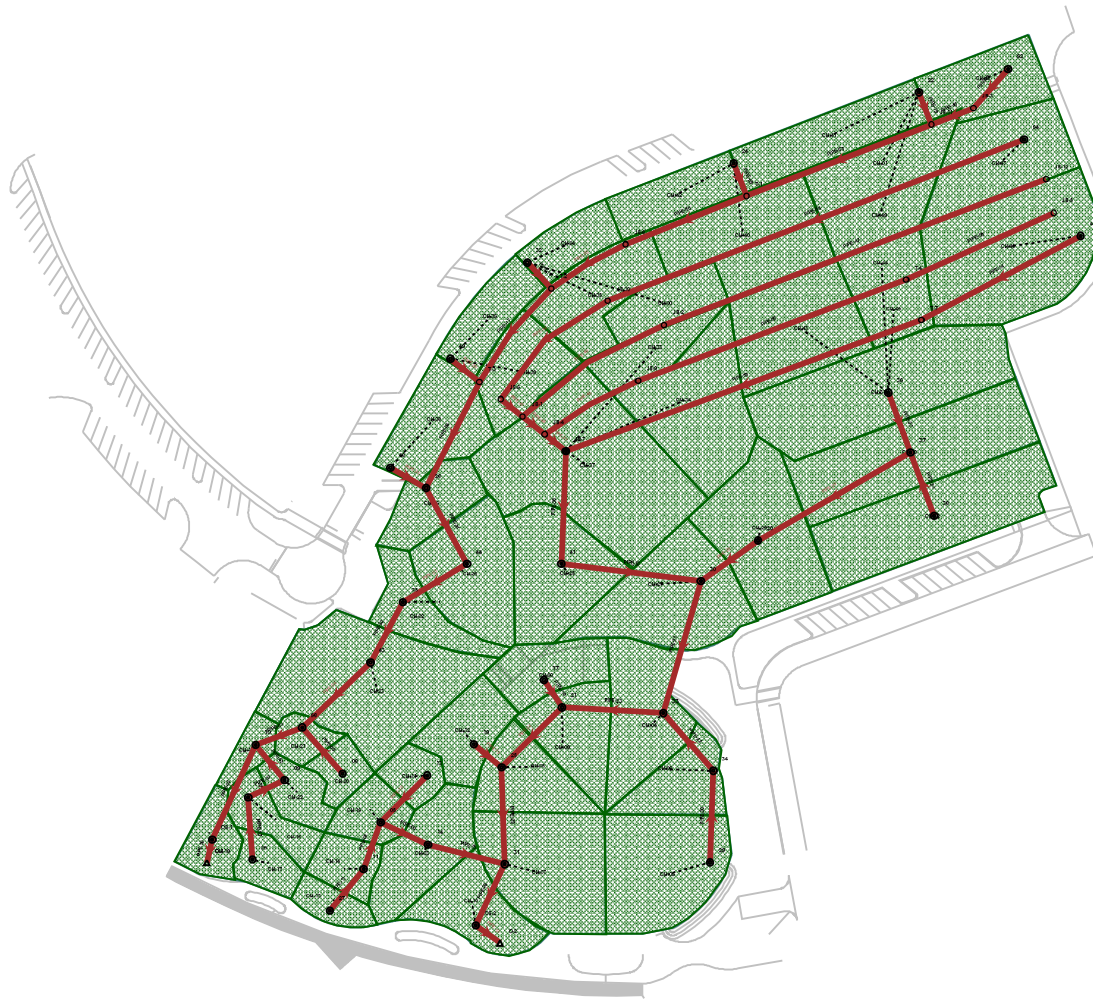
October 2020

Exhibit

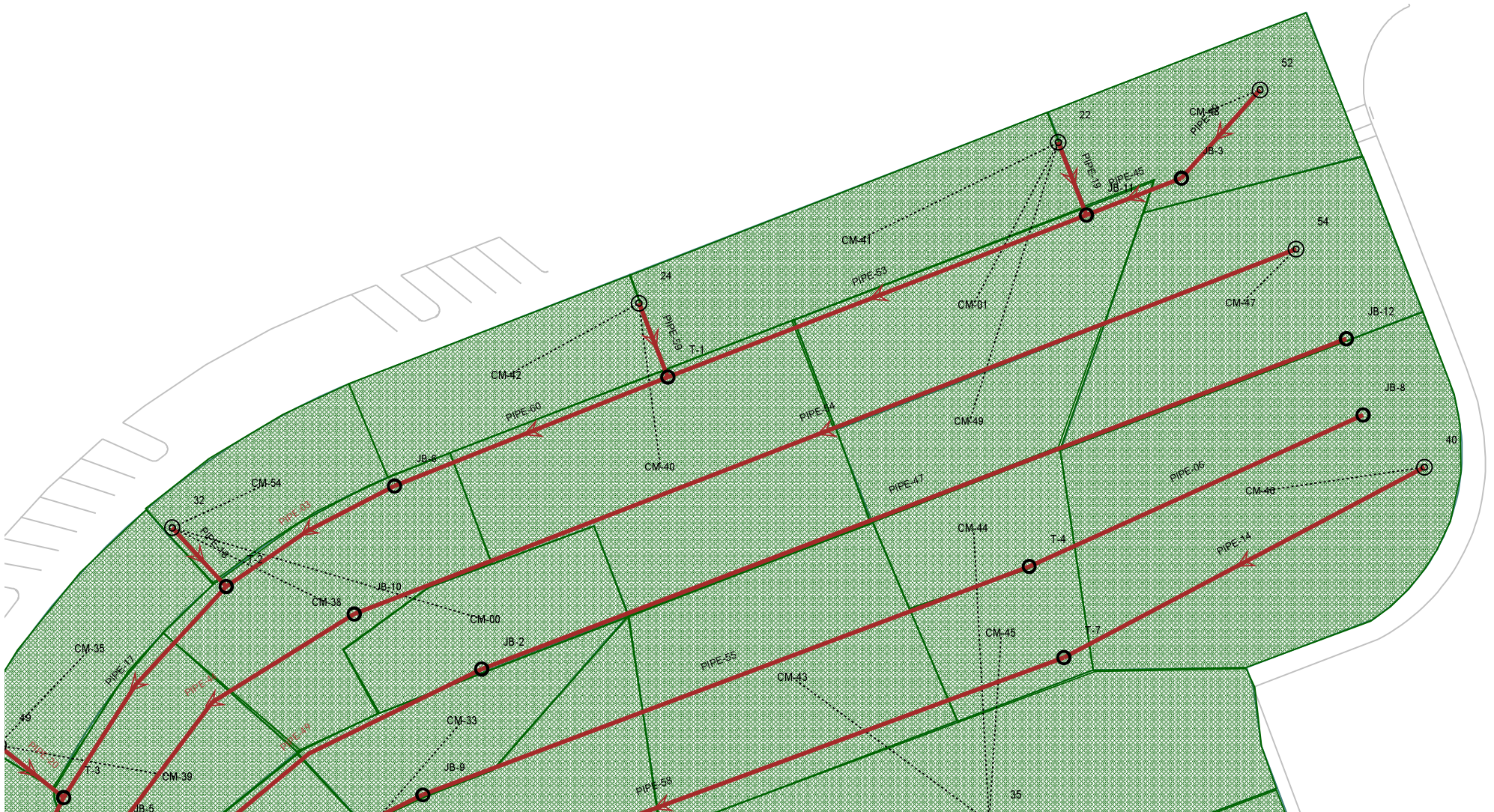
APPENDIX D: STORMCAD RESULTS

MODEL LAYOUT, INPUT AND RESULTS

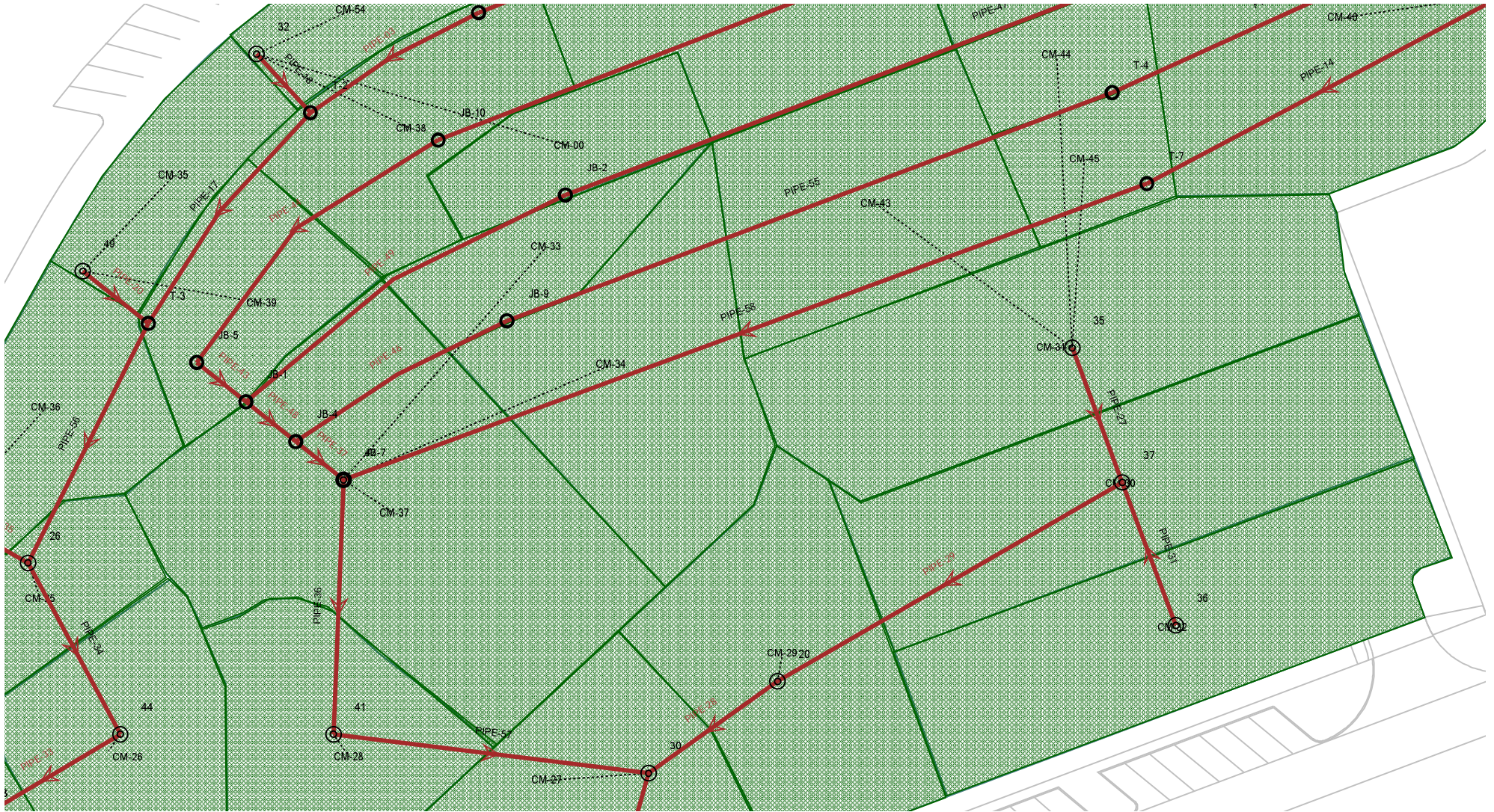
Scenario: Veterans Park



Scenario: Veterans Park



Scenario: Veterans Park



FlexTable: Catchment Table

Label	Scaled Area (acres)	Outflow Element	Area (User Defined) (acres)	Runoff Coefficient (Rational)	Time of Concentration (hours)	Flow (Total Out) (cfs)
CM-00	0.091	32	0.090	0.200	0.167	0.13
CM-01	0.138	22	0.140	0.210	0.167	0.20
CM-02	0.098	38	0.099	0.930	0.167	0.64
CM-03	0.149	14	0.149	0.400	0.167	0.41
CM-04	0.179	33	0.181	0.310	0.167	0.39
CM-05	0.234	29	0.235	0.360	0.167	0.59
CM-06	0.106	34	0.103	0.200	0.167	0.14
CM-07	0.243	31	0.242	0.410	0.167	0.69
CM-08	0.122	28	0.124	0.270	0.167	0.23
CM-09	0.128	21	0.129	0.270	0.167	0.24
CM-10	0.126	CS-2	0.126	0.200	0.167	0.18
CM-11	0.051	13	0.051	0.610	0.167	0.22
CM-12	0.108	19	0.108	0.540	0.167	0.41
CM-13	0.046	27	0.046	0.340	0.167	0.11
CM-14	0.061	11	0.062	0.670	0.167	0.29
CM-15	0.068	08	0.068	0.600	0.167	0.28
CM-16	0.070	18	0.070	0.530	0.167	0.26
CM-17	0.054	25	0.055	0.500	0.167	0.19
CM-18	0.040	10	0.039	0.360	0.167	0.10
CM-19	0.065	CS-1	0.065	0.270	0.167	0.12
CM-20	0.047	06	0.047	0.360	0.167	0.12
CM-21	0.040	56	0.040	0.260	0.167	0.07
CM-22	0.064	09	0.064	0.490	0.167	0.22
CM-23	0.355	43	0.356	0.280	0.167	0.69
CM-25	0.097	26	0.356	0.370	0.167	0.92
CM-26	0.190	44	0.099	0.200	0.167	0.14
CM-27	0.245	30	0.190	0.310	0.167	0.41
CM-28	0.202	41	0.200	0.460	0.167	0.64
CM-29	0.245	20	0.246	0.240	0.167	0.41
CM-30	0.301	37	0.302	0.940	0.167	1.97
CM-31	0.349	35	0.350	0.860	0.167	2.09
CM-32	0.293	36	0.296	0.860	0.167	1.77
CM-33	0.083	42	0.083	0.200	0.167	0.12
CM-34	0.244	42	0.245	0.520	0.167	0.89
CM-35	0.099	49	0.099	0.910	0.167	0.62
CM-36	0.152	46	0.151	0.730	0.167	0.77
CM-37	0.440	42	0.442	0.500	0.167	1.54
CM-38	0.160	32	0.160	0.210	0.167	0.23
CM-39	0.125	49	0.125	0.220	0.167	0.19
CM-40	0.246	24	0.245	0.200	0.167	0.34
CM-41	0.161	22	0.161	0.920	0.167	1.03
CM-42	0.107	24	0.110	0.950	0.167	0.73
CM-43	0.219	35	0.221	0.340	0.167	0.52
CM-44	0.065	35	0.065	0.340	0.167	0.15
CM-45	0.068	35	0.068	0.200	0.167	0.09
CM-46	0.356	40	0.356	0.340	0.167	0.84
CM-47	0.198	54	0.198	0.340	0.167	0.47
CM-48	0.130	52	0.130	0.620	0.167	0.56
CM-49	0.086	22	0.086	0.200	0.167	0.12
CM-50	0.104	17		0.590	0.167	0.43
CM-54	0.079	32	0.077	0.950	0.167	0.51

FlexTable: Conduit Table

Label	Start Node	Stop Node	Invert (Start) (ft)	Invert (Stop) (ft)	Diameter (in)	Velocity (ft/s)	Headloss (ft)	Manning's n	Flow (cfs)	Length (Unified) (ft)
PIPE-01	56	10	2.00	2.00	24.0	1.78	0.02	0.013	5.59	44.1
PIPE-02	10	CS-1	2.00	2.00	24.0	1.93	0.06	0.013	6.07	92.4
PIPE-03	JB-6	T-2	2.00	2.00	18.0	1.32	0.03	0.012	2.34	77.5
PIPE-04	43	56	2.00	2.00	24.0	1.76	0.04	0.013	5.53	83.8
PIPE-05	06	56	2.00	2.00	8.0	0.34	0.00	0.012	0.12	54.5
PIPE-06	T-4	JB-8	2.00	2.00	18.0	0.00	0.00	0.012	0.00	143.9
PIPE-07	18	09	2.00	2.00	8.0	1.22	0.04	0.012	0.43	35.9
PIPE-08	11	08	2.00	2.00	8.0	1.06	0.04	0.012	0.37	44.0
PIPE-09	08	14	2.00	2.00	8.0	2.33	0.18	0.012	0.82	46.5
PIPE-10	13	08	2.00	2.00	8.0	0.62	0.02	0.012	0.22	58.7
PIPE-11	27	11	2.00	2.00	8.0	0.31	0.00	0.012	0.11	47.6
PIPE-12	25	18	2.00	2.00	8.0	0.55	0.01	0.012	0.19	55.2
PIPE-13	19	28	2.00	2.00	8.0	1.16	0.03	0.012	0.41	32.2
PIPE-14	40	T-7	2.00	2.00	18.0	0.48	0.01	0.012	0.84	160.1
PIPE-15	14	31	2.00	2.00	8.0	3.38	0.57	0.012	1.18	70.3
PIPE-16	17	21	2.00	2.00	8.0	1.22	0.03	0.012	0.43	29.1
PIPE-17	T-2	T-3	2.00	2.00	18.0	1.67	0.07	0.012	2.96	105.1
PIPE-18	32	T-2	2.00	2.00	18.0	0.49	0.00	0.012	0.87	31.3
PIPE-19	JB-11	22	2.00	2.00	18.0	0.77	0.00	0.012	1.36	30.6
PIPE-20	T-3	49	2.00	2.00	18.0	0.46	0.00	0.012	0.82	33.0
PIPE-21	30	33	2.00	2.00	24.0	1.58	0.06	0.013	4.98	121.7
PIPE-22	34	33	2.00	2.00	18.0	0.37	0.00	0.012	0.65	67.9
PIPE-23	33	21	2.00	2.00	24.0	1.71	0.05	0.013	5.38	90.2
PIPE-24	21	28	2.00	2.00	24.0	1.78	0.05	0.013	5.60	75.5
PIPE-25	28	31	2.00	2.00	24.0	1.85	0.06	0.013	5.82	85.9
PIPE-26	31	CS-2	2.00	2.00	24.0	2.10	0.05	0.013	6.59	60.2
PIPE-27	35	37	2.00	2.00	18.0	1.62	0.04	0.012	2.86	56.4
PIPE-28	20	30	2.00	2.00	24.0	2.08	0.05	0.013	6.54	62.2
PIPE-29	37	20	2.00	2.00	24.0	2.04	0.13	0.013	6.40	156.6
PIPE-30	29	34	2.00	2.00	18.0	0.33	0.00	0.012	0.59	81.3
PIPE-31	36	37	2.00	2.00	18.0	1.00	0.01	0.012	1.77	60.0
PIPE-32	38	43	2.00	2.00	24.0	1.62	0.03	0.012	5.10	60.8
PIPE-33	38	44	2.00	2.00	24.0	1.50	0.02	0.012	4.71	66.3
PIPE-34	44	26	2.00	2.00	24.0	1.49	0.03	0.012	4.69	76.5
PIPE-35	26	46	2.00	2.00	18.0	0.43	0.00	0.012	0.77	36.5
PIPE-36	42	41	2.00	2.00	18.0	0.96	0.02	0.012	1.70	100.0
PIPE-37	42	JB-4	2.00	2.00	18.0	0.12	0.00	0.012	0.21	24.1
PIPE-39	JB-3	52	2.00	2.00	18.0	0.32	0.00	0.012	0.56	46.4
PIPE-43	JB-1	JB-5	2.00	2.00	18.0	0.13	0.00	0.012	0.23	24.8
PIPE-44	JB-10	JB-5	2.00	2.00	18.0	0.16	0.00	0.012	0.28	132.1
PIPE-45	JB-3	JB-11	2.00	2.00	18.0	0.29	0.00	0.012	0.52	40.1
PIPE-46	JB-9	JB-4	2.00	2.00	18.0	0.00	0.00	0.012	0.00	96.0

FlexTable: Conduit Table

Label	Start Node	Stop Node	Invert (Start) (ft)	Invert (Stop) (ft)	Diameter (in)	Velocity (ft/s)	Headloss (ft)	Manning's n	Flow (cfs)	Length (Unified) (ft)
PIPE-47	JB-12	JB-2	2.00	2.00	18.0	0.00	0.00	0.012	0.00	363.5
PIPE-48	JB-4	JB-1	2.00	2.00	18.0	0.13	0.00	0.012	0.22	25.1
PIPE-49	JB-2	JB-1	2.00	2.00	18.0	0.00	0.00	0.012	0.00	151.1
PIPE-50	CS-1	O-1	2.00	2.00	60.0	0.31	0.00	0.013	6.07	10.0
PIPE-51	CS-2	O-2	2.00	2.00	60.0	0.34	0.00	0.013	6.63	10.0
PIPE-52	09	10	2.00	2.00	12.0	0.79	0.01	0.012	0.62	40.5
PIPE-53	JB-11	T-1	2.00	2.00	18.0	0.95	0.04	0.013	1.67	176.3
PIPE-54	54	JB-10	2.00	2.00	18.0	0.27	0.01	0.013	0.47	396.7
PIPE-55	T-4	JB-9	2.00	2.00	18.0	0.00	0.00	0.013	0.00	254.4
PIPE-56	T-3	26	2.00	2.00	18.0	1.98	0.12	0.013	3.51	105.3
PIPE-57	41	30	2.00	2.00	24.0	0.62	0.01	0.013	1.94	124.9
PIPE-58	T-7	42	2.00	2.00	18.0	0.41	0.02	0.013	0.72	336.8
PIPE-59	24	T-1	2.00	2.00	12.0	1.36	0.03	0.013	1.07	31.1
PIPE-60	T-1	JB-6	2.00	2.00	18.0	1.37	0.06	0.013	2.41	115.6

FlexTable: Manhole Table

Label	Headloss Method	Headloss Coefficient (Standard)	Elevation (Rim) (ft)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Elevation (Ground) (ft)	Elevation (Invert) (ft)
06	Standard	0.800	6.30	3.91	3.91	6.30	0.50
08	Standard	0.700	6.43	5.63	5.58	6.43	0.50
09	Standard	0.500	6.50	3.86	3.86	6.50	0.50
10	Standard	0.600	8.83	3.85	3.81	8.83	0.50
11	Standard	0.500	6.30	5.68	5.67	6.30	0.50
13	Standard	0.500	6.28	5.65	5.65	6.28	0.50
14	Standard	0.500	6.20	5.40	5.31	6.20	0.50
17	Standard	0.500	6.19	4.96	4.95	6.19	0.50
18	Standard	0.800	6.21	3.92	3.90	6.21	0.50
19	Standard	0.500	6.21	4.88	4.87	6.21	0.50
20	Standard	0.500	5.30	5.17	5.14	5.30	0.50
21	Standard	0.800	5.60	4.92	4.88	5.60	0.50
22	Standard	0.500	5.97	4.57	4.56	5.97	0.50
24	Standard	0.500	5.58	4.55	4.53	5.58	0.50
25	Standard	0.500	5.51	3.93	3.93	5.51	0.50
26	Standard	0.500	5.00	4.12	4.10	5.00	0.50
27	Standard	0.500	5.39	5.39	5.39	5.39	0.50
28	Standard	0.800	5.50	4.83	4.79	5.50	0.50
29	Standard	0.500	5.20	5.01	5.01	5.20	0.50
30	Standard	0.600	5.30	5.09	5.06	5.30	0.50
31	Standard	0.700	5.40	4.73	4.69	5.40	0.50
32	Standard	0.500	5.14	4.38	4.38	5.14	0.50
33	Standard	0.700	5.60	5.00	4.97	5.60	0.50
34	Standard	0.600	5.20	5.01	5.01	5.20	0.50
35	Standard	0.500	5.35	5.26	5.24	5.35	0.50
36	Standard	0.500	5.20	5.21	5.20	5.20	0.50
37	Standard	0.700	5.20	5.25	5.20	5.20	0.50
38	Standard	0.500	5.10	4.02	4.00	5.10	0.50
40	Standard	0.500	5.06	5.03	5.03	5.06	0.50
41	Standard	0.800	5.00	5.00	5.00	5.00	0.50
42	Standard	0.700	5.00	5.01	5.00	5.00	0.50
43	Standard	0.500	5.00	3.98	3.95	5.00	0.50
44	Standard	0.700	4.90	4.07	4.05	4.90	0.50
46	Standard	0.500	4.93	4.12	4.12	4.93	0.50
49	Standard	0.500	4.87	4.28	4.28	4.87	0.50
52	Standard	0.500	4.48	4.48	4.48	4.48	0.50
54	Standard	0.500	5.49	5.01	5.01	5.49	0.50
56	Standard	0.700	7.43	3.91	3.87	7.43	0.50
CS-1	Standard	0.900	5.00	3.75	3.73	5.00	0.50
CS-2	Standard	0.900	5.21	4.64	4.63	5.21	0.50

APPENDIX E:

Utility Availability Letter



City of Marco Island

October 22, 2020

Mr. Patrick Glynn, E.I.
Kimley-Horn
1412 Jackson St., Suite 2
Ft. Myers, FL 33901

Subject: Proposed Veterans Park Improvements
Water, Sewer, and Reclaimed Water Service Availability

Mr. Glynn,

The subject property is within the City of Marco Island potable water, reclaimed water, and sanitary sewer service areas. All three services are available for connections in the immediate vicinity of the proposed improvements; however the following will be required:

1. The engineer shall submit the proposed site development plans (SDP) depicting all potable water, fire suppression water, irrigation water, and sanitary sewer improvements to the City's Water and Sewer Department concurrently with its submittal to the City's Community Affairs Department. The City's Water and Sewer Department will review the SDP upon receipt of the review fee, signed and sealed plans, and signed and a sealed engineering report including the following calculations:
 - wastewater generation
 - potable water demands
 - fire suppression water demands using ISO formulas
 - reclaimed irrigation water demands
 - water and sewer impact fee calculations
2. Water and sewer impact fees must be paid prior to connection to the City's potable water, reclaimed water, and sanitary sewer collection system.
3. If any food service facilities are proposed, then a sanitary sewer collection system and grease traps will be required, and the Engineer will be required to include grease trap calculations as part of the signed and sealed engineering report and depict the grease traps on the SDP. A grease trap maintenance permit is required for any grease trap that is constructed. Grease traps shall be pumped out periodically by a licensed grease handling contractor certified to operate in Marco Island as required by the permit. The City will conduct periodic inspections of the grease trap to ensure compliance with the permit.
4. Portable temporary food dispensing such as food trucks or special event food kiosks or booths shall not wash or clean food or beverage containers, cooking equipment, utensils, etc.. on this site unless the appropriate washing facilities are designed and depicted on the SDP. Washing facilities will require waste collection plumbing and corresponding grease traps.

50 Bald Eagle Dr., Marco Island, Florida 34145

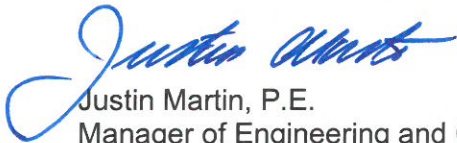
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5. No structures, buildings, light poles, landscaping other than ground cover shall be designed, constructed, installed, or planted over any of the existing mains which cross this property.
6. Connections to existing mains shall be in accordance with the City of Marco Island sewer construction standards.
7. Connections and temporary water main outage requests shall be coordinated with the City's Water and Sewer Department at least two weeks in advance.
8. Water meters and appropriate backflow prevention will be required for each connection to the City's mains.

Please feel free to contact me if you have any questions.

Kind Regards,



Justin Martin, P.E.
Manager of Engineering and Operations

Cc: Jeff Poteet, Bart Bradshaw, Laura Ryan, Sonia Iszler