



Final Drainage Report

New Horizon Academy

Douglas 234, Filing 6 Lot 11

Parker, Colorado

NHOAC 156217 | March 12, 2021



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Final Drainage Report

New Horizon Academy
Douglas 234, Filing 6 Lot 11
Parker, Colorado

SEH No. NHOAC 156217

April 20, 2021

Owner:
New Horizon Academy
3405 Annapolis Lane N., Suite 100
Plymouth, MN 55447

Applicant/Developer:
Patriot Construction Services
1122 Walnut Street
Hastings, MN 55033

Engineer:
Short Elliott Hendrickson, Inc.
418 West Superior Street, Suite 200
Duluth, MN 558802



Engineer's Certification

The report for the final design of New Horizon Academy was prepared by me (or under my direct supervision) in accordance with the provisions of the *Town of Parker Storm Drainage and Environmental Criteria Manual*. I understand that the Town of Parker and its designated town authority do not and will not assume liability for drainage facilities designed by others.

Tim Nuetzel
Registered Professional Engineer
State of Colorado No. 37763



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Final Drainage Report

New Horizon Academy

Prepared for New Horizon Academy

1 General Location and Description

1.1 Name and Location of Project

The New Horizon Academy development project is located in the Southwest Quarter of Section 29, Township 6 South, Range 66 West of the 6th Principal Meridian, within the Town of Parker, County of Douglas, Colorado.

The project site is also known as Lot 11 of Chambers and Hess Filing No. 6 Development. The site is 1.651 acres in area. This development is located entirely within the Chambers and Hess Filing No. 6 development.

Bordering the New Horizon Academy development to the north is South Red Sky Drive, a residential local street, and to the west is Sliceroo Drive. East of New Horizon Academy is Block 12 of Douglas 234, Filing No. 1, 1st Amendment. Please refer to Figure 1 below for a vicinity map.

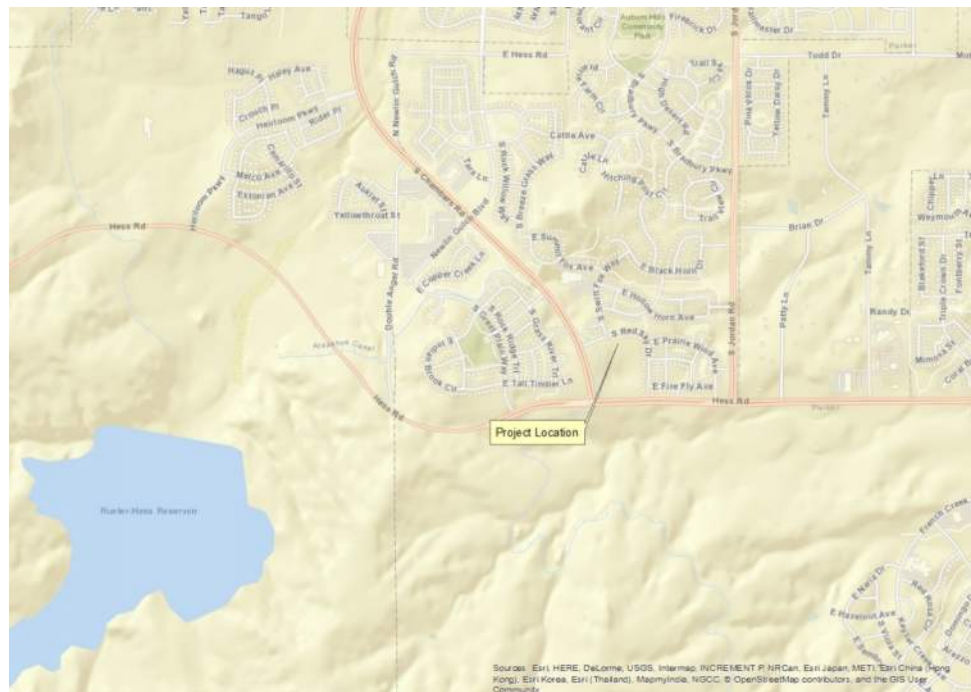


Figure 1 Vicinity Map (ESRI ArcGIS)

1.2 Description of Property

The proposed development is within the Cherry Creek watershed. Cherry Creek is located about 1.75 miles east of Chambers and Hess Filing No. 6.

A National Resources Conservation Service (NRCS) soils map is in the Appendix. Two distinct soil types are encountered within the New Horizon Academy Development. Newlin-Satanta (NsE) complex, Hydrologic Soil Group B, described as gravelly sandy clay loam. Renohill-Buick (RmE) complex, Hydrologic Soil Group D, described as clay loam.

Lott 11 contains 1.651 acres of undeveloped but recently disturbed land. The existing ground cover mostly consists of short grass prairie. The site generally slopes from west to east with grades varying between 1% and 33%. The entire site will be disturbed as part of this project and will result in 0.90 acres of new impervious surface.

There are numerous drainage, utility, public access, and access easements within and adjacent to the property. See Appendix A for a site plan sheet detailing the location of these easements.

The New Horizon Academy project will provide a new daycare center to the Vista Ridge Development. The project will consist of the following work:

- Remove unsuitable soils from under the building and pavement areas
- Grading operations across the entire site
- Asphalt parking lot and access road, curb and gutter, and storm sewer construction
- Modular block retaining wall construction
- Slab on grade building construction
- Playground construction
- Topsoil and seed all disturbed areas

2 Drainage Basins and Sub-Basins

2.1 Major Drainage Basins

Major Drainage Basins were described in the Preliminary Drainage Report dated May 5, 2020 by Rick Engineering Company as follows:

“Chambers and Hess Filing No. 1 is located within two major drainage basins, Cherry Creek and Oak Gulch. Oak Gulch is tributary to Cherry Creek.

Chambers and Hess Filing No. 1 is approximately 2 miles upstream of Cherry Creek. The most recent Flood Hazard Area Delineation for Cherry Creek in 2003 by URS did not include Chambers and Hess Filing No. 1 in the report.

Oak Gulch was studied as part of the “Oak Gulch and Lemon Gulch Flood Hazard Area Delineation” (Reference 4). Chambers and Hess Filing No. 1 is part of sub-basin 109.

Chambers and Hess Filing No.1 is in FEMA Zone X, an area of minimal flood hazard. A FEMA LOMR will not be required.

The Chambers and Hess Filing No. 1 site was originally studied as part of the Parker 234 Subdivision Final Drainage Report (Reference 3). The report identified that the site is part of the

Cherry Creek watershed and Oak Gulch watershed. The report assigned historic drainage basin C-3 (area tributary to Cherry Creek) and historic drainage basin D-3 (area tributary to Oak Gulch)."

2.2 Minor Drainage Basins

Minor Drainage Basins were described in the Preliminary Drainage Report dated May 5, 2020 by Rick Engineering Company as follows:

"Referring to the Historic Drainage Map in Appendix C, the basin designations were adopted from the Parker 234 Final Drainage Report to maintain clarity and continuity.

Historic Basins C1, C2, C3 and C4, tributary to Cherry Creek, drain from west to east. Basin C1 drains to an existing area inlet that was constructed as part of the Parker 234 subdivision improvements. The runoff then travels north and east via storm sewer to existing detention Pond "A". Basin C2 drains from west to east, ultimately through the residential lots on Block 2 of Douglas 234 Filing No. 1, eventually to the existing Red Sky Drive, then to existing pond "A". Basin C3 drains from west to east through the residential lots on Block 2 of Douglas 234 Filing No. 1, eventually to existing Detention Pond "A". Detained runoff from Pond "A" is conveyed under Jordan Road to the east, to an unnamed drainage way that ultimately connects to Cherry Creek. Basin C4 drains to the north to Red Sky Drive, then to the east and ultimately captured by existing storm sewer and routed to Pond "A".

Historic Basins D1 and D2, tributary to Oak Gulch, drain to the west and south to existing South Chambers Road and Hess Road. Runoff from Historic Basins D1 and D2 travels south on Chambers Road, then east on Hess Road, to Pond F (Reference 5). Runoff from Pond F is conveyed south, under Hess Road to Oak Gulch.

There is no offsite runoff that flows onto Chambers and Hess Filing No. 1."

The Preliminary Drainage Report also included a post-development drainage map, included in Appendix C, dividing the site into further sub-basins. The project site is located almost entirely within sub-basin A12 which drains to an area drain in the south east corner of the lot and constructed as part of Chambers & Hess Filing No. 1.

There was no additional offsite runoff that flows on sub-basin A12.

The site was further divided into site specific minor drainage basins for this development that were provided descriptive names regarding where the runoff flows to.

Sub-basin EX-1 collects most of the playground stormwater through overland flow to the east into the existing inlet, EX-1. Sub-basin EX-1 Swale also flows to inlet EX-1 after collecting the majority of stormwater from the east landscape buffer and conveying it through a small site drainage swale southeast to the inlet.

Sub-basin ST-1 and ST-2 collect stormwater from the parking lot and surrounding landscaped areas. Both convey stormwater to their respective inlets in the southeastern parts of the basins through overland flow.

Sub-basin ST-3 collects stormwater from half of the building's roof. The stormwater is collected in the building's roof drain system and conveyed to manhole ST-3 through drain pipes.

Sub-basin ST-4 collects stormwater from the parking lot and surrounding landscaped areas. The water is conveyed through overland flow to inlet ST-4 located in the northeast corner of the sub-basin. Sub-basin ST-4 Roof also flows to inlet ST-4 after collecting stormwater from half of the building's roof. The stormwater is collected in the building's roof drain system and conveyed to inlet ST-4 through drain pipes. Sub-basin ST-4 captures stormwater from a small area outside of the property lines to the west of this site causing the total contributing runoff area for the site to be greater than the size of the property.

Offsite sub-basins north, east, and south collect stormwater from small areas around the periphery of the site that is not otherwise captured. This stormwater typically has 10' of overland flow or less before leaving the site onto surrounding property. Grading and easement constraints prevented this stormwater from being captured and conveyed within this site.

3 Drainage Design Criteria

3.1 Regulations

3.1.1 Design Standards

The Town of Parker Storm Drainage and Environmental Criteria Manual was used for site design on this project.

3.1.2 Flood Plains

The New Horizon Academy Development is not located within a regulated flood plain, therefore, the New Horizon Academy Development is in compliance with the Town of Parker's floodplain ordinance.

3.1.3 Town's Stream Preservation Standards

New Horizon Academy is not located within the Town of Parker Stream Preservation Area. However, the Preliminary Drainage Report states that the project "will implement BMP measures to ensure that no adverse impact to water quality due to land disturbances. There are no Minor or Major Modifications requested. There are no planned improvements that would be eligible for Mile High Flood District's maintenance eligibility."

3.1.4 Development Criteria and Constraints

The Preliminary Drainage Report for Chambers and Hess Filing No. 1 states the following criteria were considered:

"Chambers and Hess Filing No. 1 will comply with the drainage improvements outlined in the Final Drainage Report for the Parker 234 Subdivision. The report assigned the area of Chambers and Hess Filing No. 1 as future commercial development, 95% impervious. Chambers and Hess Filing No. 1 is using 75% impervious for the commercial lots, according to Mile High Flood District Table 6-3 (see Appendix) Business: Suburban Area. The proposed impervious is 52%. By reducing the impervious area, there will be no adverse impact to the downstream drainage conveyance elements, including the existing storm sewer and existing detention Pond "A".

Following design of the development a more accurate percent impervious was determined to be 52% using 90% for roofs and drives, 25% for playgrounds, and 2% for lawn areas. This

impervious is below what was considered for Chambers and Hess Filing No. 1 and what the downstream drainage conveyance systems were sized for in Parker 234 Subdivision.

3.1.5 Hydrology Criteria

The minor storm is the 5 year recurrence interval. The major storm is the 100 year recurrence interval.

The site is 1.65 acres and an additional 0.10 offsite acres are tributary to the site. The Rational Method is the method used to determine runoff rates for the minor and major storm. Rational method runoff coefficients are based on the NRCS Hydrologic Soil Ratings. The predominant soil type (73%), Newlin-Satanta, has Hydrologic Soil Group Rating as Type "B". The remaining 27% of the site has a Type D rated soil. The Type D rated soil is confined to the northwest corner of the site, entirely within the ST-3 sub-area, therefore the Rational Method Runoff Coefficients were calculated assuming Type B for all other sub-areas and Type D for ST-3.

There are no detention facilities proposed for the New Horizon Academy Development. Existing detention pond "A" will receive developed runoff from the New Horizon Academy Development, as designated in the Final Drainage Report for the Parker 234 Subdivision.

3.1.6 Hydraulic Criteria

Inlet capacities for the parking lot and swale were calculated using UD-Inlet Version 4.06. The minor storm flow depth is limited to no overtopping. Minor storm runoff can spread to the end of the parking stall (18' from the curb line). The major storm flow depth was checked using the same constraints. Appendix B contains inlet capacity calculations.

Hydraulic grade lines are calculated using Bentley StormCAD software. The hydraulic grade line for the minor storm must be located below the crown of the pipe. The hydraulic grade line for the major storm must be located at least 12" below finished grade as a maximum condition.

3.1.7 Variance from Criteria

There are no variances from criteria being sought.

4 Drainage Facility Design

4.1 General Concept

4.1.1 5' Type R Inlet

Three inlets will be installed within the proposed parking area to intercept all flows from the new impervious surface. A detailed analysis of each inlet's capacity utilizing UD-Inlet Version 4.06 is attached in Appendix B.

4.1.2 Type C Inlet

One inlet was previously constructed in the southeast corner of the site and will be utilized to capture overland flow from the playground and site swale. The existing inlet will be depressed to provide sufficient capacity for the site flows to the inlet. A detailed analysis of this inlet capacity is attached in Appendix B.

4.1.3 Roof Drains

Four downspouts will collect the water from the roof of the structure and convey it underground through 6" PVC pipe to connections on the inlets as shown on the plans. The 5-year storm event will produce a flow from the roof of 0.27 cfs per downspout and the pipe capacity is at least 0.55 cfs.

4.1.4 Site Storm Pipe

All storm pipe on the site is 18" RCP per the Town standards.

4.1.5 Overland Flow

Site drainage east of the proposed building within the playground area will sheet flow to the existing Type C inlet either overland or through a small swale along the east property line. This overland flow will be limited to 200' and will have a maximum slope of 2.00% prior to reaching the edge of the playground and from there flowing over or through a retaining wall before breaking to a 3:1 slope. No channelization or stream flow is anticipated to occur with this storm water.

4.1.6 Swale Flow

Site drainage along the east property line will be collected into a small swale and conveyed to the existing private detention pond. The swale will have a 2.0% slope. See Appendix B for swale design calculations utilizing UD-BMP Version 3.07.

4.1.7 Offsite Flow

Offsite flows will occur in three locations: west of the north retaining wall, east of the site drainage swale and south of the playground retaining wall, and east of the south retaining wall.

The north offsite flow will cross the existing sidewalk and enter the Red Sky Drive road network. Due to grading constraints and existing utility easements it is not possible to capture this stormwater prior to it leaving the site. Grading has been designed to direct the majority of the stormwater to the north, onto the road, instead of towards the adjacent residential areas. The 100-year storm flow to the north will be 0.28 cfs, which is substantially lower than the 0.72 cfs that currently enters the Red Sky Drive road network. As the existing system operates with sufficient capacity and the total runoff will be reduced no further analysis of Red Sky Drive was performed.

The east offsite flow will occur over the length of the swale and south playground retaining wall. In total the 100-year storm flow leaving the site will be 0.44 cfs but it will occur along the full length with no opportunity for concentrated flow. This flow is substantially lower than the existing 3.15 cfs that is presently coming from the site.

The south offsite flow comes from the sidewalk on the south side of the property and will flow to the neighboring parcel to the south with a 100-year storm flow of 0.05 cfs.

4.2 Specific Details

4.2.1 Detention Storage Required for Full-Spectrum Detention

The Preliminary Drainage Report includes the following discussion regarding on-site detention for Chambers and Hess Filing No. 1, of which the New Horizon Academy Development is fully included in.

“the property was included in the tributary area to the existing detention Pond “A”, about 1200 feet east of Chambers and Hess Filing No. 1. The appendices contain original design calculations for Pond “A”. When Pond “A” was designed, the Chambers and Hess Filing No. 1 property was assigned a percent impervious of 95%. The proposed site impervious for Chambers and Hess Filing No. 1 is 69%. There is no additional drainage area tributary to Pond “A”. Therefore, the detention volume requirements for Pond “A” are not adversely impacted by a developed Chambers and Hess Filing No. 1 property because the pond will receive more pervious drainage area than originally designed.”

As previously discussed, the actual site impervious for the New Horizon Academy development is 52% which is below the proposed site impervious of 69%.

4.2.2 Storm Sewer Configuration

Currently a Type C inlet has been constructed in the southeast corner of Lot 11 to collect overland flows from the preliminary site grading. This structure is connected through an 18” RCP at a grade of 8.78% to an inlet to the south and from there discharges to Pond “A” through further conveyance pipes. The inlet will have an 18” RCP pipe connected to the west side which will run into inlet ST-1 in the parking lot. The south side roof drain pipes will connect to this inlet (ST-1). An 18” RCP will continue west to connect to inlet ST-2 in the parking lot. From there an 18” RCP will run north to manhole ST-3 and continue north to inlet ST-4 in the parking lot. The north side roof drain pipes will connect to inlet ST-4. See Appendix A for the storm sewer site plans.

The Manning’s pipe flow equation was used to check the full flow capacity of the pipe. The maximum discharge of an 18” RCP at an 8.78% slope was 30.4 cfs, much greater than the 9.24 cfs major storm discharge from this project. The design calculations for this pipe assumed a flow of 9.0 cfs as shown in Appendix C, which is 3% less than the major storm discharge from this project. All other pipes have at least 3.3 cfs of excess capacity above the major storm discharge.

The excess storm discharge from this project above what was previously anticipated for the site (approximately 0.24 cfs during the major storm) is due to the extra off-site area west of sub-basin ST-4 that is being captured on this site. The Post Development Drainage Map for Chambers and Hess Filing No. 1 assumed that all stormwater from Sliceroo Drive would be conveyed in the roadway gutter to the south end of Sliceroo Drive as shown in Appendix C. At that time the stormwater will be captured in roadway inlets and conveyed to the regional Pond “A”, utilizing the same pipes that are used to convey flows from this project.

StormCAD was used to model this pipe network for both 5- and 100-year storm events and the results are attached as Appendix B. The model showed that the hydraulic grade line remains within the pipe throughout the network and did not have any hydraulic jumps at structures.

4.2.3 Channel Design and Soil Erodibility Within Channel

There is only one minor drainage grass lined swale proposed for the New Horizon Academy Development. The calculations for this swale are in the appendix. The relatively low developed runoff conveyed by this swale yields velocities less than 1.0 feet per second, resulting in stable grass swales that do not require grade drops or armoring.

5 Environmental Protection Criteria

5.1 General

There are no wetlands located in the New Horizon Academy Development. There are no "Water of the U.S." located in the New Horizon Academy Development.

5.2 Construction BMP Plan

Construction BMP's will be implemented in a three-phase schedule, initial, interim, and final stabilization.

The initial phase will install construction fencing, perimeter construction BMP's like Silt Fencing and Sediment Control Logs. Vehicle tracking control to reduce the tracking of soils into the surrounding public streets and subdivision. Inlet Protection will be installed at the existing Type C storm drain inlet in the southeast corner of the site to prevent sediments from entering the existing storm drain systems.

The interim phase will have the erosion and sediment controls associated with ongoing construction and grading operations. As grading operations bring the ground to finished grade elevations, trenching for proposed utilities, and rough street cuts prior to paving, BMP's like rock socks are installed to reduce stormwater runoff to non-erosive velocities.

The final phase is where the site is to be stabilized by revegetating disturbed areas, installing erosion control blankets or similar on steeper grades.

5.3 Permanent BMP Plan

The permanent BMPs are described as follows in the Preliminary Drainage Report for Chambers and Hess Filing No. 1, of which the New Horizon Academy Development is fully a part of:

"Chambers and Hess Filing No. 1 will utilize a regional Permanent BMP by discharging developed runoff to existing Pond "A". Pond "A" acts as the Water Quality Enhancement BMP for Chambers and Hess Filing No. 1."

6 Summary

6.1 Compliance with Standards

The proposed drainage designs presented in this report effectively maintain existing drainage patterns for the proposed condition and follow the intent of the Preliminary Drainage Report within the proposed building site. The existing and proposed drainage elements have been sized to convey the 100-year peak runoff event in accordance with the Town of Parker criteria. All drainage features designed in support of the proposed New Horizon Academy improvements fully meet the Town of Parker design criteria requirements as described in the Town of Parker's Storm

Drainage and Environmental Criteria Manual by utilizing the design methods and requirements outlined in the SDECM.

6.2 Drainage Concept

The drainage design for the New Horizon Academy Development effectively controls developed runoff by constructing storm sewer and storm drain inlets that convey developed runoff to the existing storm water infrastructure previously constructed as part of Chambers and Hess Filing No. 1. By reducing the impervious area from the original drainage concept this development ensures that there are no adverse downstream impacts to the existing storm drainage infrastructure within the Douglas 234 subdivision.

7 References

Preliminary Drainage Report for Chambers and Hess Filing No. 1 dated May 5, 2020. Rick Engineering Company

FEMA Flood Insurance Rate Map Number 08035C0181G. Accessed from FEMA.gov on August 17, 2020.

NRCS Web Soil Survey, *Custom Report for Castle Rock Area, Colorado*. Accessed August 6, 2020.

Satellite view of New Horizon Development. Sources: Esri, DigitalGlobe, GeoEye, i-cubed, USDA FSA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community. Accessed on February 26, 2020.

Maps were created using ArcGIS® software by Esri. ArcGIS® and ArcMap™ are the intellectual property of Esri and are used herein under license. Copyright © Esri. All rights reserved. For more information about Esri® software, please visit www.esri.com.

Town of Parker Storm Drainage and Environmental Criteria Manual. 2014 Edition. Accessed at ERIECO.gov on August 6, 2020.

Urban Storm Drainage Criteria Manual, Volume 1. 2018 Edition. Mile High Flood District. Accessed from MHFD.org on August 6, 2020.

Final Drainage Report for the Parker 234 Subdivision Parker Colorado. CVL Consultants of Colorado, Inc. 2003.

Oak Gulch and Lemon Gulch Flood Hazard Area Delineation. CH2M Hill. 2000.

Addendum #2 to the Final Drainage Report for Douglas 234 Parker Colorado. CVL Consultants of Colorado, Inc. 2004.



Appendix A

Drawings

A-1 – General Location Map

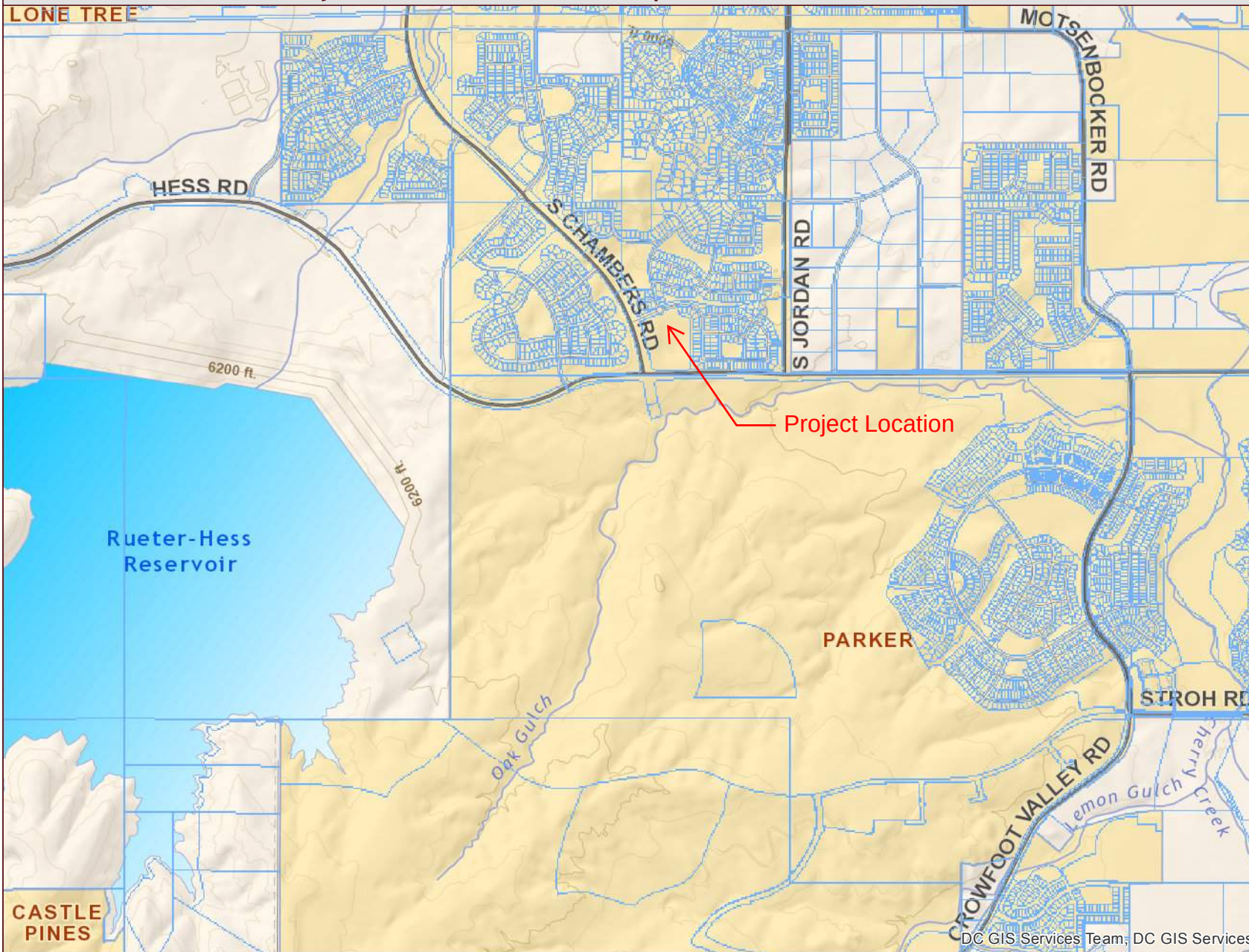
A-2 – Floodplain Information

A-3 – Soils Map

A-4 – Drainage Plan

A-5 – Site and Utility Plans

New Horizon Academy General Location Map



Real Property

Parcel

Public Land Survey System

Township

Section

General Features

School

Private Road

Railroad



DISCLAIMER:

All data and information ("Products") contained herein are for informational purposes only. Although such Products are believed to be accurate at the time of printing, Douglas County does not warrant that such Products are error free. Douglas County provides these Products on an "as is" basis without warranties of any kind, either express or implied, including, but not limited to, warranties of title or implied warranties of merchantability or fitness for a particular purpose. Douglas County shall not be liable for any direct, indirect, incidental, special or consequential damages arising out of the use of such Products, or the inability to use such Products or out of any breach of any warranty. The user acknowledges and agrees that the use of such Products is at the sole risk of the user. General questions about this or any other Douglas County GIS products, including errors, omissions, corrections and/or updates should be directed to the Douglas County GIS Division at (303) 660-7416.

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Philip S. Miller Bldg., 100 Third St.
Castle Rock, Colorado 80104

DC GIS Services Team; DC GIS Services

NOTES TO USERS

is for use in administering the National Flood Insurance Program. It does not identify all areas subject to flooding, particularly from local drainage of small size. The community map repository should be consulted for updated or additional flood hazard information.

more detailed information in areas where **Base Flood Elevations (BFEs)** have been determined, users are encouraged to consult the Flood and Floodway Data and/or Summary of Stillwater Elevations tables shown on this map. Users should be aware that BFEs shown on the FIRM represent rounded elevations. These BFEs are intended for flood insurance rating purposes and should not be used as the sole source of flood elevation information. Flood elevation data presented in the Flood Profiles and Floodway Data Summary of Stillwater Elevations tables should be utilized in conjunction with the purposes of construction and/or floodplain management.

is of the **Floodways** were computed at cross sections and interpolated cross sections. The floodways were based on hydraulic considerations with requirements of the National Flood Insurance Program. Floodway widths pertinent floodway data are provided in the Floodway Data table shown on this map.

section used in the preparation of this map was Universal Transverse (UTM) zone 13. The horizontal datum was NAD 83, GRS 1980. Differences in datum, spherical projection or UTM zones used in the FIRM for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of the FIRM.

ations on this map are referenced to the North American Vertical Datum of 1988. Flood elevations must be compared to structure and ground elevations to the same vertical datum. For information regarding conversion of the National Geographic Vertical Datum of 1929 and the North American Datum of 1983, visit the National Geographic Survey website at <http://nads.nps.gov> or contact the National Geographic Survey at the following:

Information Services
NGS212
Geodetic Survey
40502
14000 Highway
Maryland 20910-3282
3242

current elevation, description, and/or location information for **bench marks** on this map, please contact the Information Services Branch of the National Survey at (301) 713-3242, or visit its website at <http://www.ngs.nps.gov>.

up information shown on this FIRM was provided by the Douglas County GIS Department and the Town of Castle Rock GIS Department. Additional information provided by the City of Lone Tree and Town of Parker. These data are of 2010.

was not in Special Flood Hazard Areas may be protected by **flood structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Study Report for information on flood control structures for this jurisdiction.

Baseline depicted on this map represent the hydraulic modeling baseline in the flood profiles in the FIS Report. As a result of improved topographic data, **baseline**, in some cases, may deviate significantly from the channel or appear outside the SFHA.

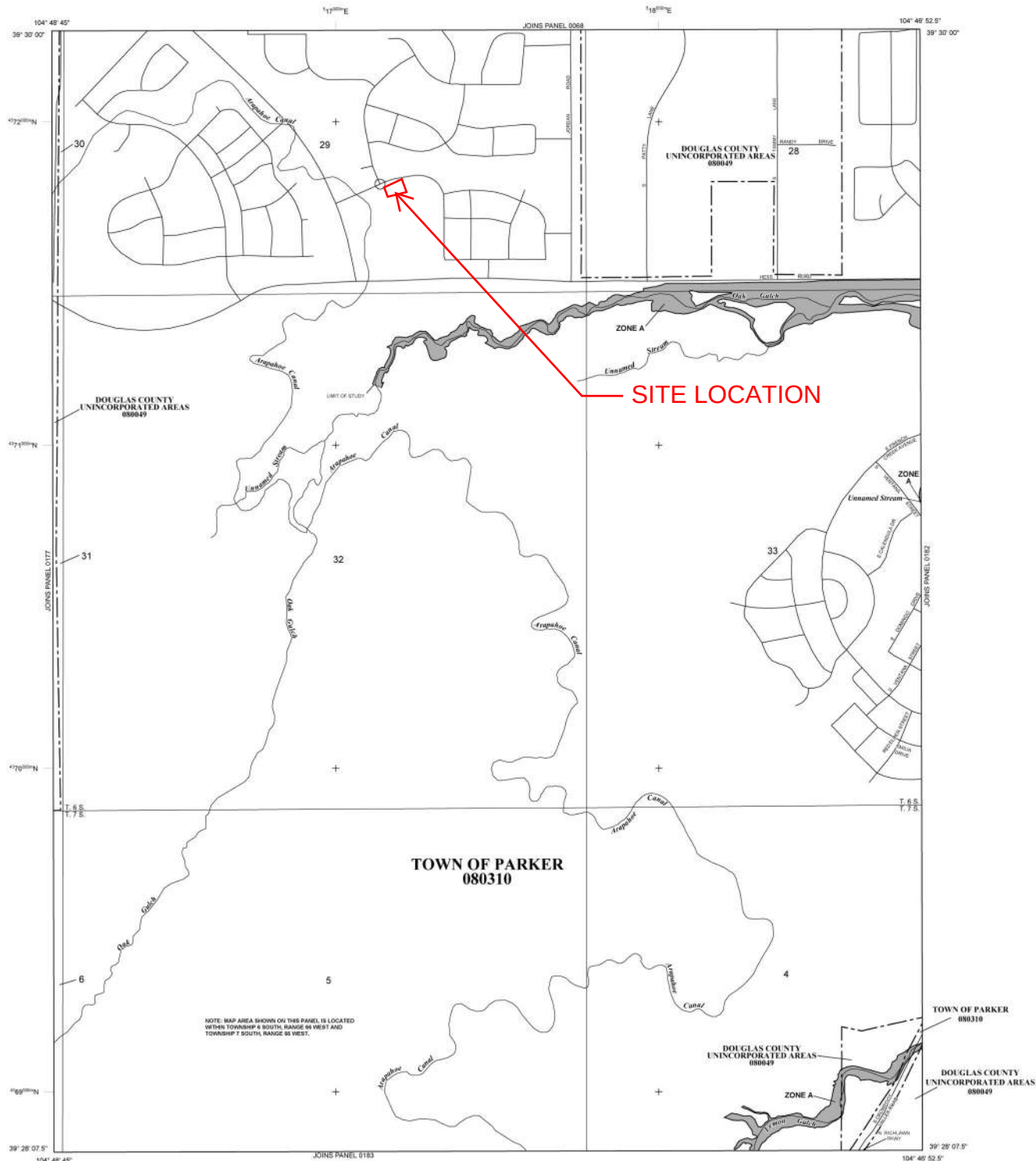
updated topographic information, this map reflects more detailed and stream channel configurations and floodplain delineations than shown on the previous FIRM for this jurisdiction. As a result, the Flood and Floodway Data tables for multiple streams in the Flood Study Report (which contains authoritative hydraulic data) may reflect some differences that differ from what is shown on the map. Also, the floodplain relationships for unreviewed streams may differ from what is shown on the map.

limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred since this map was published, map users should contact appropriate officials to verify current corporate limit locations.

Refer to the separately printed **Map Index** for an overview map of the Douglas County area showing the layout of map panels, community map repository addresses, and a listing of the panels on which each community is shown.

information on available products associated with this FIRM visit the **Map Center (MSC)** website at <http://msc.fema.gov>. Available products may include: Flood Insurance Study Report, Flood Insurance Rate Map, and Flood Insurance Study Report. Many of these products can be ordered or downloaded from the MSC website.

For questions about this map, how to order products, or the National Flood Insurance Program in general, please call the **FEMA Map Information Center (FMIC)** at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA website at <http://www.fema.gov/businessinfo>.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHA) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the "base flood," is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Areas are the areas subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, AV, and VE. The Base Flood Elevation is the water elevation of the 1% annual chance flood.

ZONE A: No Base Flood Elevations determined.

ZONE AE: Base Flood Elevations determined.

ZONE AH: Flood depths of 1 to 3 feet (locally areas of ponding). Base Flood Elevation determined.

ZONE AO: Flood depths of 1 to 3 feet (locally sheet flow on sloping terrain). Base Flood Elevation determined. For areas of abutment flooding, velocities also determined.

ZONE AR: Special Flood Hazard Areas formerly protected from the 1% annual chance flood by a flood control system that was subsequently destroyed. Zone AR indicates that the former flood control system is being restored to protection from the 1% annual chance or greater flood.

ZONE AV: Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.

ZONE VE: Coastal flood zone with velocity hazard (wave action). Base Flood Elevation determined.

FLOODWAY AREAS IN ZONE AE: The floodway is the channel of a stream plus any adjacent floodplain areas that must be approached so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS:

ZONE X: Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with discharge areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS:

ZONE D: Areas determined to be outside the 0.2% annual chance floodplain.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS: Areas in which flood hazards are undetermined, but possible.

OTHERWISE PROTECTED AREAS (OPAs):

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

1% Annual Chance Floodplain Boundary: Boundary line separating the 1% annual chance flood from areas of lesser flood hazard.

0.2% Annual Chance Floodplain Boundary: Boundary line separating the 0.2% annual chance flood from areas of lesser flood hazard.

Zone D boundary: Boundary line separating Zone D from areas of lesser flood hazard.

CBRS and OPA boundary: Boundary line separating CBRS and OPA areas from areas of lesser flood hazard.

Boundary dividing Special Flood Hazard Areas and floodplains: Boundary line separating Special Flood Hazard Areas from floodplains.

Base Flood Elevation line and value: Elevation in feet (e.g., 513).

Base Flood Elevation value where uniform within zone, area, or panel: Elevation in feet (e.g., 513).

Reference to the North American Vertical Datum of 1988:

Cross section line: Line indicating the location of a cross section.

Traverse line: Line indicating the location of a traverse.

Geographic coordinates: Referenced to the North American Datum of 1983 (NAD 83) datum.

1000-meter Universal Transverse Mercator grid values: Grid values for the 1000-meter UTM system.

Bench mark: See explanation in Notes to Users section of this map.

1:5: River mile.

MAP REPOSITORIES: Refer to Map Repository list on Map Index.

EFFECTIVE DATE OF COUNTRYWIDE FLOOD INSURANCE RATE MAP: SEPTEMBER 16, 2005.

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL: MARCH 16, 2010, to update corporate limits, to change base flood elevations, to add flood elevations, to add special flood hazard areas, to update map format, to add maps and data, to reflect updated topographic information, to incorporate previously issued letters of map revision.

For community map revision history prior to computerized mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in the community, contact your insurance agent or call the National Flood Insurance Program at 1-800-688-6822.

NFIP

PANEL 0181G

FIRM

FLOOD INSURANCE RATE MAP

DOUGLAS COUNTY, COLORADO AND INCORPORATED AREAS

PANEL 181 OF 495
(SEE MAP INDEX FOR FIRM PANEL LIST)

COMMUNITY	NUMBER	PANEL
DOUGLAS COUNTY	080310	0181
PARKER, TOWN OF	080310	0181

Notice to User: The **Map Number** shown should be used when placing map orders. The **Community Number** shown above should be used on insurance applications for the community.

MAP NUMBER: 08035C0
MAP REVISION: MARCH 16, 2010
Federal Emergency Management Agency



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 **Castle Rock Area, Colorado**

**Lot 11 of Chambers and Hess
Development**



August 6, 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.

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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



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

Water Features

 Streams and Canals

Transportation

 Rails

 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

 Spoil Area

 Stony Spot

 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

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: Castle Rock Area, Colorado
Survey Area Data: Version 13, Jun 5, 2020

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

Date(s) aerial images were photographed: Oct 3, 2018—Dec 4, 2018

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
NsE	Newlin-Satanta complex, 5 to 20 percent slopes	1.0	72.7%
RmE	Renohill-Buick complex, 5 to 25 percent slopes	0.4	27.3%
Totals for Area of Interest		1.4	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 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.

Castle Rock Area, Colorado

NsE—Newlin-Satanta complex, 5 to 20 percent slopes

Map Unit Setting

National map unit symbol: jqzh
Elevation: 5,500 to 6,600 feet
Mean annual precipitation: 15 to 19 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 120 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition

Newlin and similar soils: 50 percent
Satanta and similar soils: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Newlin

Setting

Landform: Drainageways, knobs
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Unconformable sandy and gravelly and/or mixed source alluvium

Typical profile

H1 - 0 to 8 inches: gravelly sandy loam
H2 - 8 to 17 inches: gravelly sandy clay loam
H3 - 17 to 22 inches: gravelly sandy loam
H4 - 22 to 60 inches: very gravelly sand

Properties and qualities

Slope: 5 to 20 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: B
Ecological site: R049XC202CO - Loamy Foothill 14-19 P.Z.
Hydric soil rating: No

Description of Satanta

Setting

Landform: Knobs, drainageways
Down-slope shape: Linear

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Across-slope shape: Linear

Parent material: Eolian deposits derived from mixed

Typical profile

H1 - 0 to 9 inches: loam

H2 - 9 to 30 inches: clay loam

H3 - 30 to 60 inches: loam

Properties and qualities

Slope: 5 to 10 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.60 to 2.00 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: None

Frequency of ponding: None

Calcium carbonate, maximum content: 10 percent

Available water capacity: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: B

Hydric soil rating: No

Minor Components

Truckton

Percent of map unit: 6 percent

Hydric soil rating: No

Buick

Percent of map unit: 6 percent

Hydric soil rating: No

Bresser

Percent of map unit: 6 percent

Hydric soil rating: No

Aquic haplustolls

Percent of map unit: 2 percent

Landform: Swales

Hydric soil rating: Yes

RmE—Renohill-Buick complex, 5 to 25 percent slopes

Map Unit Setting

National map unit symbol: jqzy

Elevation: 5,500 to 6,200 feet

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Mean annual precipitation: 15 to 17 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 120 to 135 days
Farmland classification: Not prime farmland

Map Unit Composition

Renohill and similar soils: 50 percent
Buick and similar soils: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Renohill

Setting

Landform: Hills
Landform position (three-dimensional): Side slope, base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Weathered, calcareous clayey shale

Typical profile

H1 - 0 to 3 inches: clay loam
H2 - 3 to 12 inches: clay loam
H3 - 12 to 24 inches: clay loam
H4 - 24 to 28 inches: unweathered bedrock

Properties and qualities

Slope: 5 to 25 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: R049XC202CO - Loamy Foothill 14-19 P.Z.
Hydric soil rating: No

Description of Buick

Setting

Landform: Hills
Landform position (three-dimensional): Side slope, base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Eolian deposits over silty alluvium

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Typical profile

H1 - 0 to 4 inches: loam
H2 - 4 to 15 inches: silty clay loam
H3 - 15 to 22 inches: loam
H4 - 22 to 60 inches: sandy clay loam

Properties and qualities

Slope: 5 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water capacity: High (about 9.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Satanta

Percent of map unit: 6 percent
Hydric soil rating: No

Manzanola

Percent of map unit: 6 percent
Hydric soil rating: No

Fondis

Percent of map unit: 6 percent
Hydric soil rating: No

Aquic haplustolls

Percent of map unit: 2 percent
Landform: Swales
Hydric soil rating: Yes

References

- American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.
- American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.
- Federal Register. July 13, 1994. Changes in hydric soils of the United States.
- Federal Register. September 18, 2002. Hydric soils of the United States.
- Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.
- National Research Council. 1995. Wetlands: Characteristics and boundaries.
- Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262
- Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577
- Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580
- Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.
- United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.
- United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374
- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

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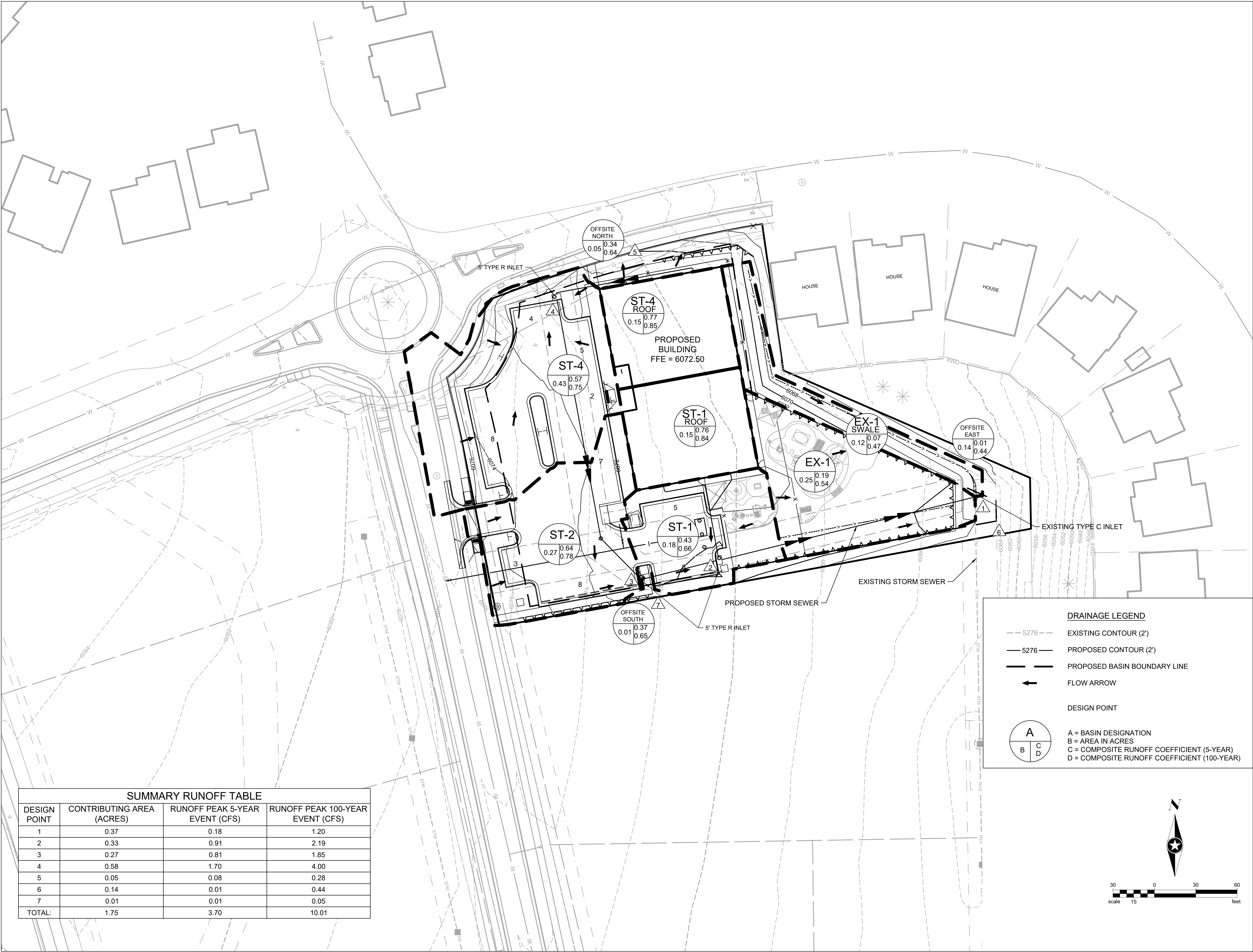
United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

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SUMMARY RUNOFF TABLE			
DESIGN POINT	CONTRIBUTING AREA (ACRES)	RUNOFF PEAK 5-YEAR EVENT (CFS)	RUNOFF PEAK 100-YEAR EVENT (CFS)
1	0.37	0.18	1.20
2	0.33	0.91	2.19
3	0.27	0.81	1.85
4	0.58	1.70	4.00
5	0.05	0.08	0.28
6	0.14	0.01	0.44
7	0.01	0.01	0.05
TOTAL:	1.75	3.70	10.01



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New Horizon Academy
**NEW HORIZON ACADEMY -
DOUGLAS 234 FILING, NO. 6**
PARKER, CO

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SEH Project
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NHOAC 156217
DRH
AMP

Project Status
TOWN REVIEW
TOWN REVIEW
TOWN REVIEW

Issue Date
8/26/2020
1/22/2021
3/12/2021

Revision Issue

Rev. #	Description	Date
1	TOWN COMMENTS	1/22/21
2	TOWN COMMENTS	3/12/21

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TOWN OF PARKER GENERAL NOTES – CONSTRUCTION

- ALL MATERIALS AND CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE LATEST EDITION OF THE COLORADO DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, THE LATEST EDITION OF THE TOWN OF PARKER ROADWAY DESIGN AND CONSTRUCTION CRITERIA MANUAL, AND THE TOWN OF PARKER STORM DRAINAGE AND ENVIRONMENTAL CRITERIA MANUAL.
- ALL MATERIALS AND WORKMANSHIP SHALL BE SUBJECT TO INSPECTION BY THE TOWN OF PARKER PUBLIC WORKS DEPARTMENT. THE TOWN RESERVES THE RIGHT TO ACCEPT OR REJECT ANY SUCH MATERIALS AND WORKMANSHIP THAT DOES NOT CONFORM TO ITS STANDARDS AND SPECIFICATIONS.
- A PRECONSTRUCTION MEETING SHALL BE SCHEDULED A MINIMUM OF 48 HOURS AND A MAXIMUM OF 96 HOURS PRIOR TO THE START OF CONSTRUCTION. A PRECONSTRUCTION MEETING WILL NOT BE SCHEDULED UNTIL THE GRADING PERMIT AND ALL OTHER NECESSARY PERMITS HAVE BEEN OBTAINED.
- THE TOWN INSPECTOR SHALL BE CONTACTED A MINIMUM OF 24 HOURS PRIOR TO A NECESSARY INSPECTION. IF A TOWN INSPECTOR IS NOT AVAILABLE AFTER PROPER NOTICE OF CONSTRUCTION ACTIVITY HAS BEEN PROVIDED, THE PERMITTEE MAY COMMENCE WORK IN THE TOWN INSPECTOR'S ABSENCE. HOWEVER, THE TOWN OF PARKER RESERVES THE RIGHT TO REJECT THE IMPROVEMENT IF SUBSEQUENT TESTING REVEALS AN IMPROPER INSTALLATION.
- LOCATION OF EXISTING UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO ACTUAL CONSTRUCTION IN ACCORDANCE WITH ALL STATE AND LOCAL LAWS. THE CONTRACTOR SHALL FIELD VERIFY SIZE AND HORIZONTAL AND VERTICAL LOCATIONS OF EXISTING FACILITIES PRIOR TO CONSTRUCTION, AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
- THE CONTRACTOR SHALL HAVE ONE (1) SIGNED COPY OF THE PLANS, APPROVED BY THE TOWN OF PARKER DIRECTOR OF ENGINEERING/PUBLIC WORKS, AND ONE (1) COPY OF THE ROADWAY DESIGN AND CONSTRUCTION CRITERIA AT THE JOB SITE AT ALL TIMES.
- A PLAN FOR TRAFFIC CONTROL DURING CONSTRUCTION SHALL BE SUBMITTED TO THE TOWN OF PARKER FOR ACCEPTANCE WITH THE RIGHT-OF-WAY USE PERMIT APPLICATION. A PERMIT WILL NOT BE ISSUED WITHOUT AN APPROVED TRAFFIC CONTROL PLAN FOR USE DURING CONSTRUCTION.
- ALL TRENCHES SHALL BE ADEQUATELY SUPPORTED AND THE SAFETY OF WORKERS PROVIDED FOR AS REQUIRED BY THE MOST RECENT OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) "SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION."
- COMPACTION OF ALL TRENCHES MUST BE ATTAINED AND COMPACTION TEST RESULTS SUBMITTED TO THE DEVELOPMENT REVIEW ENGINEER IN PRELIMINARY FORM PRIOR TO PAVING AND IN FINAL FORM PRIOR TO PROBATIONARY ACCEPTANCE.
- THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING EROSION AND SEDIMENT CONTROL MEASURES AT ALL TIMES DURING CONSTRUCTION. THE PLAN MAY BE MODIFIED AS FIELD CONDITIONS WARRANT WITH APPROVAL FROM THE TOWN OF PARKER PUBLIC WORKS DEPARTMENT.
- THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN PROPER TRAFFIC CONTROL DEVICES UNTIL THE SITE IS OPEN TO TRAFFIC. THE CONTRACTOR SHALL SUBMIT A TRAFFIC CONTROL PLAN TO THE TOWN OF PARKER PUBLIC WORKS DEPARTMENT FOR APPROVAL PRIOR TO CONSTRUCTION.
- PLANS ARE APPROVED FOR PERIOD OF 1 (ONE) YEAR FROM THE DATE SHOWN ON THE TOWN OF PARKER SIGNATURE BLOCK. PLANS SHALL BE RESUBMITTED TO THE TOWN FOR APPROVAL AFTER 1 YEAR. THE COST OF THE PLAN RE-REVIEW AND RE-ACCEPTANCE WILL BE CHARGED BACK TO THE DEVELOPER INCLUDING ALL TIME AND EXPENSES OF THE TOWN OF PARKER PUBLIC WORKS DEPARTMENT.
- REPAIR OF ANY DAMAGE TO EXISTING IMPROVEMENTS OR LANDSCAPING IS THE RESPONSIBILITY OF THE CONTRACTOR. SUCH RESTORATION MAY BE REQUIRED TO BE COMPLETED PRIOR TO ACCEPTANCE OF COMPLETED IMPROVEMENTS.
- ALL DAMAGED EXISTING CURB, GUTTER, AND SIDEWALK SHALL BE REPAIRED PRIOR TO ACCEPTANCE OF COMPLETED IMPROVEMENTS.
- ALL CONSTRUCTION ACTIVITIES MUST COMPLY WITH THE STATE OF COLORADO PERMITTING PROCESS FOR "STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY." FOR INFORMATION, PLEASE CONTACT COLORADO DEPARTMENT OF HEATH, WATER QUALITY CONTROL DIVISION, WQCD-PE-B2, 4300 CHERRY DRIVE SOUTH, DENVER, COLORADO 80222-1530. ATTENTION: PERMITS AND ENFORCEMENT SECTION. PHONE (303) 692-3500.
- IF DEWATERING IS REQUIRED, A STATE CONSTRUCTION DEWATERING DISCHARGE PERMIT IS REQUIRED FOR DISCHARGES TO A STORM SEWER, CHANNEL, IRRIGATION DITCH, ANY STREET THAT IS TRIBUTARY TO THE AFOREMENTIONED FACILITIES, OR ANY WATER OF THE UNITED STATES.
- ALL REFERENCES TO BOOKS, PAGES, MAPS, AND RECEPTION NUMBER ARE PUBLIC DOCUMENTS ON FILE WITH THE COUNTY CLERK AND RECORDER'S OFFICE

TOWN OF PARKER GENERAL NOTES – ROADWAY NOTES

- PAVING SHALL NOT COMMENCE UNTIL A SOILS REPORT AND PAVEMENT DESIGN IS APPROVED BY THE TOWN OF PARKER AND SUBGRADE COMPACTION TESTS ARE SUBMITTED TO AND APPROVED BY THE TOWN INSPECTOR.
- STANDARD TOWN OF PARKER CURB RAMPS ARE TO BE CONSTRUCTED AT ALL CURB RETURNS AND AT ALL "T" INTERSECTIONS IN ACCORDANCE WITH THE LATEST TOWN OF PARKER STANDARDS
- ALL STATIONING IS BASED ON CENTERLINE OF ROADWAYS UNLESS OTHERWISE NOTED.
- ALL ELEVATIONS ARE ON USGS DATUM WITH DATE. RANGE POINT OR MONUMENT SHALL BE SHOWN ON THE CONSTRUCTION PLANS.
- EXCEPT WHERE OTHERWISE PROVIDED FOR IN THESE PLANS AND SPECIFICATIONS, THE COLORADO DEPARTMENT OF HIGHWAYS STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, THE COLORADO DEPARTMENT OF HIGHWAYS M AND S STANDARDS, AND THE TOWN OF PARKER ROADWAY DESIGN AND CONSTRUCTION CRITERIA MANUAL, LATEST EDITION, SHALL APPLY.

TOWN OF PARKER GENERAL NOTES – STORM SEWER SYSTEM

- ALL STORM DRAINAGE IMPROVEMENTS ARE SUBJECT TO COMPLIANCE WITH THE COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, M & S STANDARDS, AND ALL STANDARD SPECIAL PROVISIONS CURRENTLY USED BY CDOT, WITH THE MODIFICATIONS SET FORTH IN THE TOWN OF PARKER'S STORM DRAINAGE AND ENVIRONMENTAL CRITERIA MANUAL (SDECM), AS AMENDED.
- THE CONTRACTOR SHALL COMPLY WITH THE "COLORADO WATER QUALITY CONTROL ACT" (TITLE 25, ARTICLE 8 CRS), THE "PROTECTION OF FISHING STREAMS" TITLE 33, ARTICLE 5, CRS), THE "CLEAN WATER ACT" (33 USC 1344), CHERRY CREEK RESERVOIR CONTROL REGULATION NO. 72" (5 CCR 1002-72), THE REGULATION PROMULGATED, CERTIFICATION OR PERMITS ISSUES, AND THE REQUIREMENTS PRESENTED IN THE SDECM REVISION TO SECTION 107 AND THE CONSTRUCTION BMP PLAN. IN THE EVENT OF CONFLICTS BETWEEN THESE REQUIREMENTS AND WATER QUALITY CONTROL LAWS, RULES, OR REGULATIONS OF OTHER FEDERAL, OR STATE AGENCIES, THE MORE RESTRICTIVE LAWS, RULES, OR REGULATIONS SHALL APPLY.
- INSPECTIONS: CONSTRUCTION SHALL NOT BEGIN UNTIL A GRADING PERMIT HAS BEEN ISSUED FOR THE PROJECT. THE CONTRACTOR SHALL NOTIFY THE TOWN OF PARKER ENGINEERING DEPARTMENT (PUBLIC WORKS) TO SCHEDULE INSPECTIONS A MINIMUM OF 48 HOURS PRIOR THE CONSTRUCTION OF ALL DRAINAGE INFRASTRUCTURE (STORM SEWERS, INLETS, MANHOLES, ENERGY DISSIPATERS, RIPRAP, GROUTED BOULDERS, DETENTION POND OUTLET STRUCTURES, FOREBAYS, TRICKLE CHANNELS, ETC). FAILURE TO NOTIFY THE ENGINEERING DEPARTMENT FOR INSPECTIONS MAY RESULT IN NON-ACCEPTANCE OF THE INFRASTRUCTURE BY THE TOWN. URBAN DRAINAGE AND FLOOD CONTROL DISTRICT MUST ALSO BE NOTIFIED IN A SIMILAR MANNER FOR ALL MAINTENANCE ELIGIBLE DRAINAGE INFRASTRUCTURES (CONSULT WITH STORMWATER ENGINEERING DIVISION).
- STRUCTURAL BACKFILL (CDOT CLASS 1) SHALL BE COMPACTED TO CONFORM TO CDOT STANDARD SPECIFICATION 203.03. STRUCTURAL BACKFILL (CDOT CLASS 2) SHALL CONFORM TO CDOT STANDARD SPECIFICATION 203.07. AT THE CONTRACTOR'S OPTION, STRUCTURAL BACKFILL (SQUEEGEE) MEETING THE GRADATION REQUIREMENTS CONTAINED IN REVISION OF SECTION 206 OF THE CDOT STANDARD SPECIFICATIONS AS PRESENTED IN THE SDECM, MAY BE SUBSTITUTED FOR STRUCTURE BACKFILL (CLASS 1) OR CLASS 2) FOR BACKFILLING OF CULVERT PIPES, STORM SEWER PIPES, MANHOLES AND INLET STRUCTURES; HOWEVER, THE TOP 2 FEET BELOW SUBGRADE ELEVATION SHALL BE THE REQUIRED EMBANKMENT MATERIAL.
- ALL EXCAVATIONS SHALL MEET OSHA REQUIREMENTS.
- TESTING: PROBATIONARY ACCEPTANCE OF STORM DRAINAGE IMPROVEMENTS WILL BE CONTINGENT UPON SATISFACTORY TESTING RESULTS. IN ALL CASES WHERE TESTS INDICATE COMPACTION LESS THAN THAT REQUIRED BY TOWN SPECIFICATIONS, ADDITIONAL COMPACTION AND TESTS WILL BE REQUIRED UNTIL THE SPECIFICATIONS ARE MET. FREQUENCY OF TESTING WILL BE AS FOLLOWS:
 - 1 TEST FOR SUBGRADE AND 1 TEST FOR BACKFILL AT EVERY ABOVE GROUND APPURTENANCE (MANHOLES, INLETS, ETC)
 - 1 TEST EVERY 200 LF OF MAINLINE TRENCH EVERY 1 FOOT OF BACKFILL LIFT AND WITHIN 1 FOOT FROM ALL STRUCTURES.
- ALLOWABLE STORM SEWER CONDUIT MATERIAL WITHIN THE TOWN OF PARKER SHALL BE LIMITED TO REINFORCED CONCRETE PIPE (RCP) CONFORMING TO CDOT STANDARD SPECIFICATION 706.02.
- ALL RCP JOINTS SHALL BE MANUFACTURED IN ACCORDANCE WITH ASTM C443. RUBBER GASKETS SHALL BE USED ON ALL PIPE JOINTS CONFORMING TO ASTM C443. ALL RCP SECTIONS SHALL BE JOINED IN SUCH A MANNER THAT THE ENDS ARE FULLY ENTERED AND THE INNER SURFACES ARE REASONABLE FLUSH, AVERAGE JOINT GAP THAT EXCEEDS ½ INCH SHALL BE FILLED WITH AN APPROVED FLEXIBLE PLASTIC SEALANT.

TOWN OF PARKER GENERAL NOTES – STORM SEWER SYSTEM (CONT.)

- JOINT RESTRAINTS AND TOE-WALLS. CONFORMING TO CDOT M&S STANDARD PLAN NO. M-601-11 SHALL BE USED ON ALL RCP FLARED END SECTION OUTFALLS.
- EPOXY COATED REBAR SHALL BE USED AS REINFORCING STEEL ON ALL STORM INLETS AND STRUCTURES. REFERENCE CDOT M&S STANDARD PLAN NO. M-604-10, 11, 12, AND 13.
- CDOT CLASS D CONCRETE SHALL BE USED FOR ALL CONCRETE DRAINAGE STRUCTURES.
- PRE-CAST INLETS AND MANHOLE BASES SHALL NOT BE USED WITHIN THE TOWN OF PARKER RIGHT-OFWAY, WITH THE EXCEPTION OF CDOT TYPE C AND D INLETS.
- TWO- (2) MANHOLE ACCESS POINTS ARE REQUIRED ON ALL TYPE "R" CURB INLETS GREATER THAN OR EQUAL TO TEN (10) FEET IN LENGTH AS PRESENTED IN CDOT M&S STANDARD PLAN NO. M-604-12.
- ALL GROUTING (BOULDERS, RIPRAP) SHALL BE IN ACCORDANCE WITH THE REVISION OF SECTION 506 OF THE CDOT STANDARD SPECIFICATIONS AS PRESENTED IN THE SDECM.
- ALL BOULDERS AND RIPRAP SHALL BE SELECTED AND PLACED IN ACCORDANCE WITH THE REVISION OF SECTION 506 OF THE CDOT STANDARD SPECIFICATIONS AS PRESENTED IN THE SDECM.
- CONTRACTOR SHALL REFER TO THE TOWN OF PARKER'S CONSTRUCTION BEST MANAGEMENT PRACTICES DETAILS AND NOTES FOR ALL REQUIREMENTS RELATING TO RE-VEGETATION, SEDIMENT AND EROSION CONTROL REQUIREMENTS FOR CONSTRUCTION ACTIVITIES.
- PIPE BELLS SHALL NOT BE CAST INTO MANHOLE BASES OR INLETS.

TOWN OF PARKER GENERAL NOTES – SIGNAGE AND STRIPING

- ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MOST RECENT VERSION OF THE FEDERAL MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), COLORADO SUPPLEMENTAL MUTCD, AND THE TOWN OF PARKER ROADWAY DESIGN AND CONSTRUCTION CRITERIA MANUAL. FURTHER SPECIFICATIONS AND ILLUSTRATIONS ARE LOCATED IN THE COLORADO DEPARTMENT OF TRANSPORTATION M AND S STANDARDS.
- A FIELD INSPECTION OF LOCATION AND INSTALLATION OF ALL SIGNS AND MARKINGS SHALL BE PERFORMED BY THE TOWN OF PARKER.
- THE CONTRACTOR INSTALLING SIGNS SHALL BE RESPONSIBLE FOR THE LOCATING AND PROTECTING OF ALL UNDERGROUND UTILITIES.
- TYPE III (LIGHTED) BARRICADES SHALL BE SET AT THE ENDS OF ROADWAYS SEPARATING FINISHED (AND/OR ACCEPTED) AND UNFINISHED CONSTRUCTION AREAS AND SHALL BE MAINTAINED BY THE CONTRACTOR/DEVELOPER. A "ROAD CLOSED AHEAD" AND "TO BE EXTENDED" WARNING SIGNS SHALL BE INSTALLED APPROPRIATELY IN ADVANCE OF THE TYPE III BARRICADES.
- SPECIAL CARE SHALL BE TAKEN IN SIGN LOCATIONS TO ENSURE AN UNOBSTRUCTED VIEW OF EACH SIGN.
- WHERE STOP SIGN CONTROL IS APPROPRIATE, 36 INCH STOP SIGNS SHALL BE USED FOR APPROACHES TO ANY ROADWAY THAT IS CLASSIFIED AS A COLLECTOR OR GREATER.
- A 7 FOOT MINIMUM POST LENGTH SHALL BE MAINTAINED FROM THE BOTTOM OF THE SIGN PANEL TO THE GROUND. THIS REQUIREMENT FOR VERTICAL CLEARANCE IS FOR ALL SIGNS.
- DELINEATION OF ROADWAYS SHALL BE AS SPECIFIED IN THE COLORADO DEPARTMENT OF TRANSPORTATION M AND S STANDARDS.
- RAISED MEDIAN ISLAND NOSES SHALL HAVE R4-7 SIGNS AT EACH END AND A 4"x12" HIGH INTENSITY YELLOW SIGN BLANK LOCATED MIDWAY BETWEEN THE R4-7 SIGN AND FINISHED GRADE ON EACH POST.
- SIGNAGE AND STRIPING HAS BEEN DETERMINED BY INFORMATION AVAILABLE AT THE TIME OF REVIEW. PRIOR TO THE INITIATION OF ANY WARRANTY PERIOD, THE TOWN OF PARKER RESERVES THE RIGHT TO REQUIRE MODIFICATIONS TO EXISTING, OR INSTALLATION OF, ADDITIONAL SIGNAGE AND/OR PAVEMENT MARKING IF IT IS DETERMINED THAT CONDITIONS WARRANT SUCH MODIFICATION ACCORDING TO THE MUTCD OR THE CDOT M AND S STANDARDS. ALL SIGNAGE AND STRIPING SHALL FALL UNDER THE REQUIREMENTS OF THE TWO-YEAR WARRANTY PERIOD FOR NEW CONSTRUCTION. ADDITIONALLY, ALL PAVEMENT MARKINGS SHALL NOT LIFT OR PEEL DURING THE FIRST YEAR AFTER INSTALLATION.
- DIAMOND GRADE MATERIAL SHALL BE USED ON ALL STOP SIGNS AND OVERHEAD SIGNS. ALL OTHER ROADSIDE TRAFFIC CONTROL DEVICES SHALL USE HIGH INTENSITY GRADE SHEETING. NO FLUORESCENT YELLOW GREEN SHEETING SHALL BE USED UNLESS SPECIFICALLY APPROVED BY THE TOWN OF PARKER.
- ALL STREET NAME SIGNS SHALL BE HIGH INTENSITY, EXTRUDED, GREEN AND WHITE BLADES. ARTERIAL AND COLLECTOR STREET NAME SIGNS SHALL BE 9 INCH BLADES AND HAVE MIXED CASE LETTERING. LOCAL STREET NAME SIGNS SHALL BE 6 INCHES BLADES WITH MIXED CASE LETTERING.
- ALL LAYOUTS FOR INTERNALLY ILLUMINATED STREET NAME SIGNS SHALL BE SUBMITTED TO THE TOWN FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
- ALL REMOVED SIGNS SHALL BE RETURNED TO THE TOWN OF PARKER.

TOWN OF PARKER GENERAL NOTES – SIGNAGE AND STRIPING

- CROSSWALKS: SHALL BE CONSTRUCTED USING PREFORMED THERMO-PLASTIC OR AN APPROVED EQUAL.

SHALL BE LONGITUDINAL 2 FEET BY 10 FEET (CONTINENTAL) TYPE OR OTHER APPROVED BY THE TOWN OF PARKER.

SHALL LINE UP WITH HANDICAP RAMPS.

SHALL BE CENTERED WITHIN LANES AND PLACED ON LANE AND CURB LINES SO AS TO AVOID VEHICLE WHEEL PATHS.
- ALL PAVEMENT MARKING MATERIAL (INCLUDING WORDS AND SYMBOLS) SHALL BE AS FOLLOWS:

FOR CONCRETE SURFACE:
LONG LINE MARKINGS (CHANNELIZATION LINES, SKIPS, ETC.) SHALL BE EPOXY PAINT. OTHER PAINT MAY BE USED FOR TEMPORARY APPLICATION ONLY WHEN APPROVED BY THE TOWN OF PARKER.

WORDS, SYMBOLS, AND CROSSWALKS/STOP BARS SHALL BE METHYL-MYTHACRALATE, PREFORMED THERMOPLASTIC (90 MIL), PREFORMED PLASTIC (90 MIL), INLAYED TAPE (STAMARK), OR AS SPECIFIED.

(SAND OR WATER BLAST CURING COMPOUND PRIOR TO INSTALLATION OF MARKINGS.)

FOR ASPHALT SURFACE:
LONG LINE MARKINGS (CHANNELIZATION LINES, SKIPS, ETC.) SHALL BE EPOXY PAINT. OTHER PAINT MAY BE USED FOR TEMPORARY APPLICATION ONLY WHEN APPROVED BY THE TOWN OF PARKER.

WORDS, SYMBOLS, AND CROSSWALKS/STOP BARS SHALL BE HOT APPLIED THERMOPLASTIC (90 MIL), PREFORMED PLASTIC (90 MIL), INLAYED TAPE (STAMARK), METHYL-MYTHACRALATE, OR AS SPECIFIED.
- INSPECTION AND APPROVAL OF STRIPING AND CROSSWALK LAYOUT TO BE DONE BY TOWN OF PARKER DEVELOPMENT REVIEW ENGINEER (CALL 303-840-9546) PRIOR TO APPLICATION OF FINAL STRIPING.

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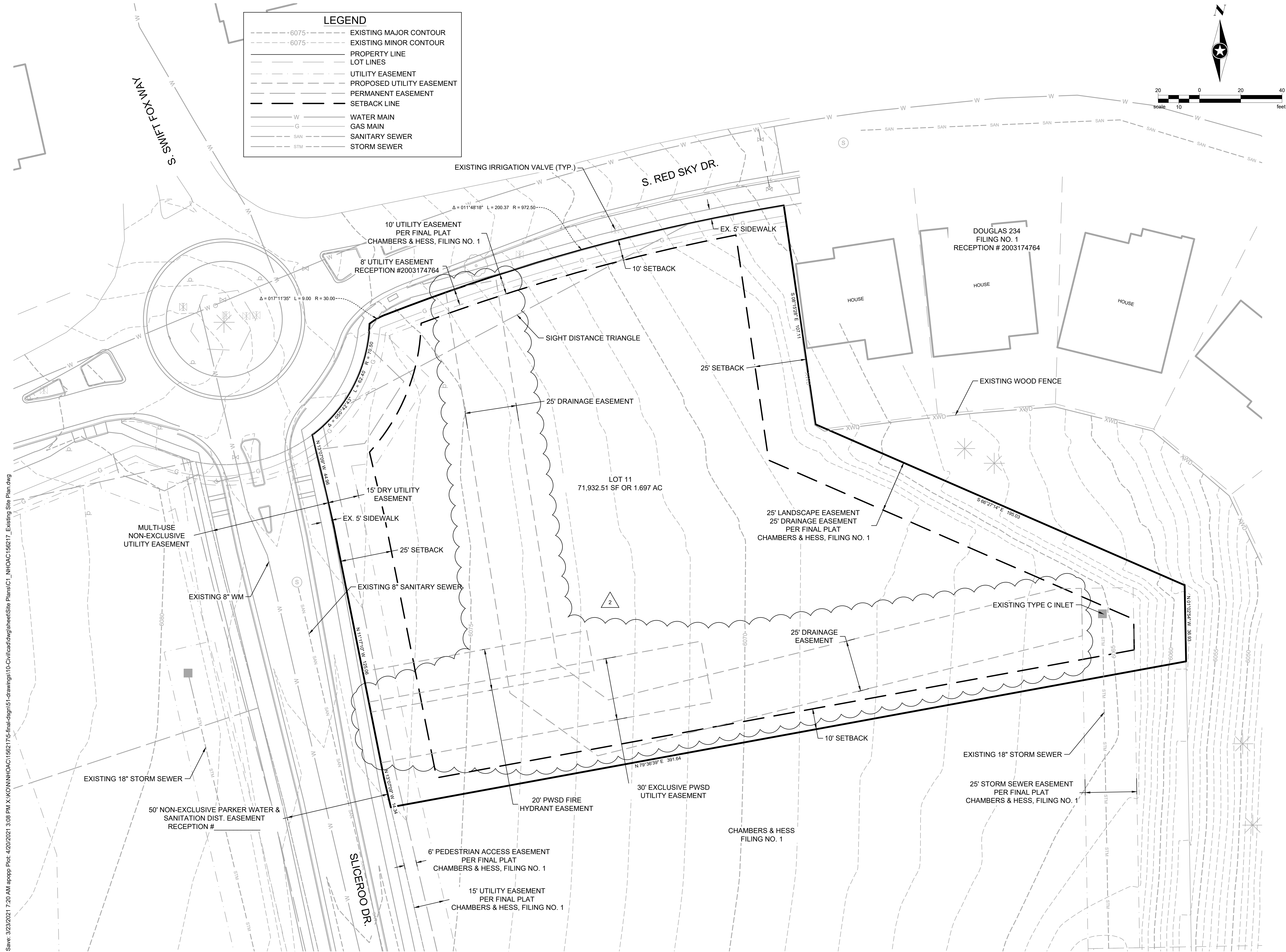
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Drawn By		AMP	
Project Status		Issue Date	
TOWN REVIEW		8/26/2020	
TOWN REVIEW		1/22/2021	
TOWN REVIEW		3/22/2021	

Revision Issue		
Rev. #	Description	Date
1	TOWN COMMENTS	1/22/21
2	TOWN COMMENTS	3/22/21

GENERAL NOTES

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**NEW HORIZON ACADEMY -
DOUGLAS 234 FILING, NO. 6**

PARKER, CO

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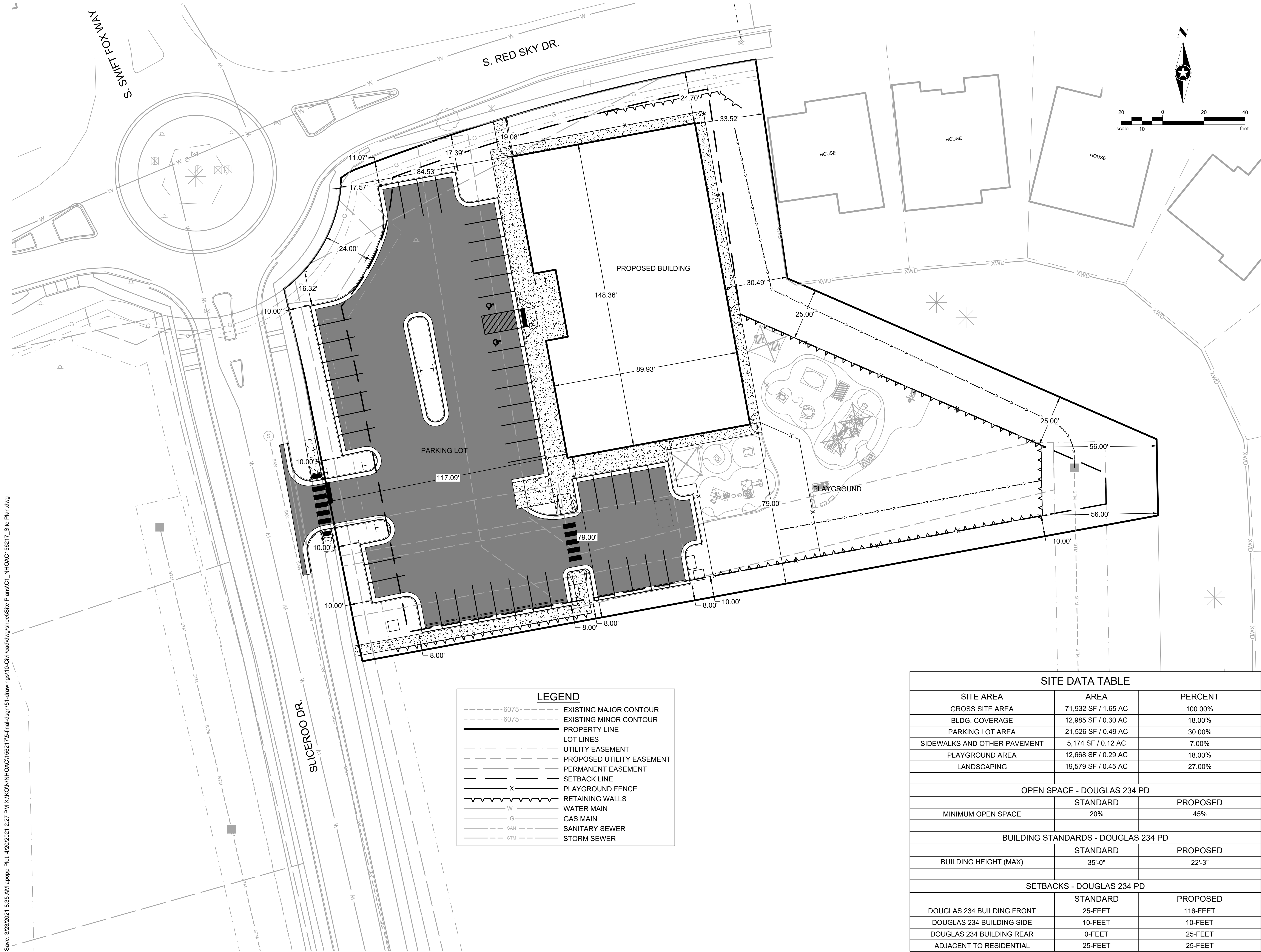
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Revision Issue		
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1	TOWN COMMENTS	1/22/21
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EXISTING CONDITIONS

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LEGEND	
---	EXISTING MAJOR CONTOUR
---	EXISTING MINOR CONTOUR
---	PROPERTY LINE
---	LOT LINES
---	UTILITY EASEMENT
---	PROPOSED UTILITY EASEMENT
---	PERMANENT EASEMENT
---	SETBACK LINE
x	PLAYGROUND FENCE
---	RETAINING WALLS
W	WATER MAIN
G	GAS MAIN
SAN	SANITARY SEWER
STM	STORM SEWER

SITE DATA TABLE		
SITE AREA	AREA	PERCENT
GROSS SITE AREA	71,932 SF / 1.65 AC	100.00%
BLDG. COVERAGE	12,985 SF / 0.30 AC	18.00%
PARKING LOT AREA	21,526 SF / 0.49 AC	30.00%
SIDEWALKS AND OTHER PAVEMENT	5,174 SF / 0.12 AC	7.00%
PLAYGROUND AREA	12,668 SF / 0.29 AC	18.00%
LANDSCAPING	19,579 SF / 0.45 AC	27.00%
OPEN SPACE - DOUGLAS 234 PD		
	STANDARD	PROPOSED
MINIMUM OPEN SPACE	20%	45%
BUILDING STANDARDS - DOUGLAS 234 PD		
	STANDARD	PROPOSED
BUILDING HEIGHT (MAX)	35'-0"	22'-3"
SETBACKS - DOUGLAS 234 PD		
	STANDARD	PROPOSED
DOUGLAS 234 BUILDING FRONT	25-FEET	116-FEET
DOUGLAS 234 BUILDING SIDE	10-FEET	10-FEET
DOUGLAS 234 BUILDING REAR	0-FEET	25-FEET
ADJACENT TO RESIDENTIAL	25-FEET	25-FEET

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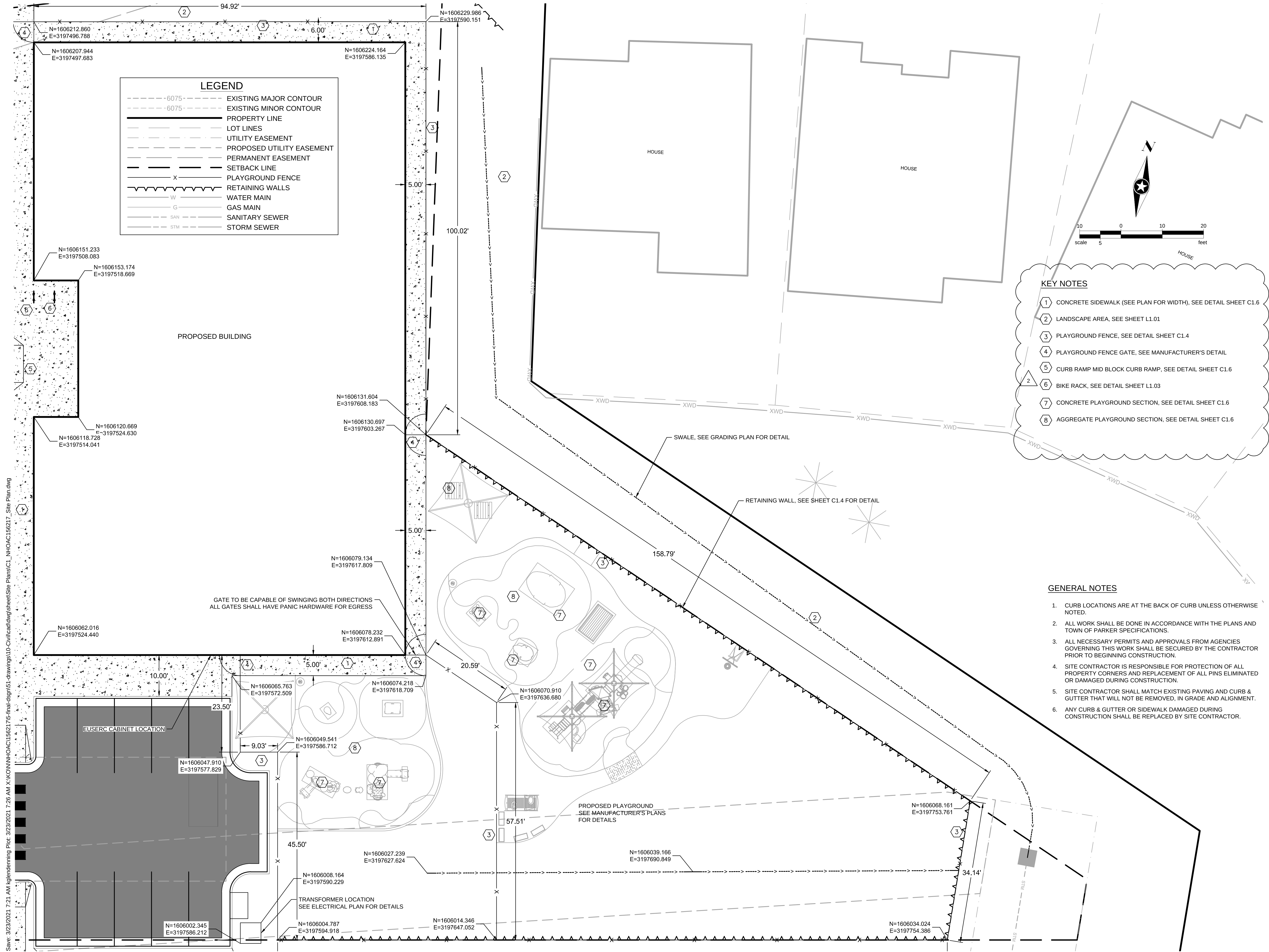
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OVERALL SITE

2

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LEGEND

- - - 6075 - - - EXISTING MAJOR CONTOUR
- - - 6075 - - - EXISTING MINOR CONTOUR
- PROPERTY LINE
- LOT LINES
- - - - - UTILITY EASEMENT
- - - - - PROPOSED UTILITY EASEMENT
- PERMANENT EASEMENT
- SETBACK LINE
- X - - - - - PLAYGROUND FENCE
- ~~~~~ RETAINING WALLS
- W — WATER MAIN
- G — GAS MAIN
- SAN — SANITARY SEWER
- STM — STORM SEWER

- KEY NOTES**
- 1 CONCRETE SIDEWALK (SEE PLAN FOR WIDTH), SEE DETAIL SHEET C1.6
 - 2 LANDSCAPE AREA, SEE SHEET L1.01
 - 3 PLAYGROUND FENCE, SEE DETAIL SHEET C1.4
 - 4 PLAYGROUND FENCE GATE, SEE MANUFACTURER'S DETAIL
 - 5 CURB RAMP MID BLOCK CURB RAMP, SEE DETAIL SHEET C1.6
 - 6 BIKE RACK, SEE DETAIL SHEET L1.03
 - 7 CONCRETE PLAYGROUND SECTION, SEE DETAIL SHEET C1.6
 - 8 AGGREGATE PLAYGROUND SECTION, SEE DETAIL SHEET C1.6

- GENERAL NOTES**
- CURB LOCATIONS ARE AT THE BACK OF CURB UNLESS OTHERWISE NOTED.
 - ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE PLANS AND TOWN OF PARKER SPECIFICATIONS.
 - ALL NECESSARY PERMITS AND APPROVALS FROM AGENCIES GOVERNING THIS WORK SHALL BE SECURED BY THE CONTRACTOR PRIOR TO BEGINNING CONSTRUCTION.
 - SITE CONTRACTOR IS RESPONSIBLE FOR PROTECTION OF ALL PROPERTY CORNERS AND REPLACEMENT OF ALL PINS ELIMINATED OR DAMAGED DURING CONSTRUCTION.
 - SITE CONTRACTOR SHALL MATCH EXISTING PAVING AND CURB & GUTTER THAT WILL NOT BE REMOVED, IN GRADE AND ALIGNMENT.
 - ANY CURB & GUTTER OR SIDEWALK DAMAGED DURING CONSTRUCTION SHALL BE REPLACED BY SITE CONTRACTOR.

Owner
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New Horizon Academy
**NEW HORIZON ACADEMY -
DOUGLAS 234 FILING, NO. 6**
PARKER, CO

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SEH Project NHOAC 156217
Checked By DBH
Drawn By AMP

Project Status Issue Date
TOWN REVIEW 8/26/2020
TOWN REVIEW 1/22/2021
TOWN REVIEW 3/22/2021

Revision Issue
Rev. # Description Date
1 TOWN COMMENTS 1/22/21
2 TOWN COMMENTS 3/22/21

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KEY NOTES

- 1 CONCRETE SIDEWALK (SEE PLAN FOR WIDTH), SEE DETAIL SHEET C1.6
- 2 LANDSCAPE AREA, SEE LANDSCAPE PLANS
- 3 PLAYGROUND FENCE, SEE DETAIL SHEET C1.4
- 4 PLAYGROUND FENCE GATE, SEE MANUFACTURER'S DETAIL
- 5 CURB RAMP MID BLOCK CURB RAMP, SEE DETAIL SHEET C1.6
- 6 BIKE RACK, SEE LANDSCAPE PLANS
- 7 ASPHALT PARKING LOT, SEE DETAIL SHEET C1.6
- 8 CONCRETE DUMPSTER PAD, SEE DETAIL SHEET C1.6
- 9 DUMPSTER ENCLOSURE FENCE, SEE ARCHITECTURAL PLANS
- 10 DUMPSTER ENCLOSURE FENCE GATE, SEE ARCHITECTURAL PLANS
- 11 VERTICAL CURB AND GUTTER SECTION (CATCH), SEE DETAIL SHEET C1.6
- 12 VERTICAL CURB AND GUTTER SECTION (SPILL), SEE DETAIL SHEET C1.6
- 13 DIRECTIONAL CURB RAMP WITHIN RADIUS, SEE DETAIL SHEET C1.6
- 14 PEDESTRIAN CURB RAMP FOR SIDEWALK OR TRAIL, SEE DETAIL SHEET C1.6

LEGEND

- - - - -6075- - - - - EXISTING MAJOR CONTOUR
- - - - -6075- - - - - EXISTING MINOR CONTOUR
- PROPERTY LINE
- LOT LINES
- UTILITY EASEMENT
- - - - - PROPOSED UTILITY EASEMENT
- PERMANENT EASEMENT
- SETBACK LINE
- X ————— PLAYGROUND FENCE
- ~~~~~ RETAINING WALLS
- W ————— WATER MAIN
- G ————— GAS MAIN
- SAN ————— SANITARY SEWER
- STM ————— STORM SEWER

PROPOSED BUILDING

RADIUS TABLE			
POINT #	NORTHING	EASTING	RADIUS
1	1606004.909	3197526.268	4.5'
2	1605989.988	3197446.653	4.5'
3	1606027.163	3197433.881	4.5'
4	1606060.532	3197427.345	4.5'
5	1606157.222	3197406.08	4.5'
6	1606199.903	3197344.409	94.5'
7	1606190.568	3197476.979	4.5'
8	1606176.196	3197415.564	26.5'
9	1606083.346	3197460.281	4.5'
10	1606083.483	3197461.027	4.5'
11	1606126.604	3197453.119	0.75'
12	1606126.224	3197451.049	0.75'
13	1606017.400	3197408.364	9.5'
14	1606060.700	3197400.543	9.5'
15	1606052.341	3197399.005	1.0'
16	1606053.237	3197406.972	1.0'
17	1606026.667	3197411.771	1.0'
18	1606024.694	3197403.998	1.0'
19	1606006.172	3197533.153	1.50'
20	1606014.926	3197586.448	4.50'
21	1606048.363	3197580.287	4.50'
22	1606037.647	3197527.385	1.50'
23	1606054.090	3197517.256	19.50'
24	1606038.214	3197505.934	0.50' (FOC)

GENERAL NOTES

1. CURB LOCATIONS ARE AT THE BACK OF CURB UNLESS OTHERWISE NOTED.
2. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE PLANS AND TOWN OF PARKER SPECIFICATIONS.
3. ALL NECESSARY PERMITS AND APPROVALS FROM AGENCIES GOVERNING THIS WORK SHALL BE SECURED BY THE CONTRACTOR PRIOR TO BEGINNING CONSTRUCTION.
4. SITE CONTRACTOR IS RESPONSIBLE FOR PROTECTION OF ALL PROPERTY CORNERS AND REPLACEMENT OF ALL PINS ELIMINATED OR DAMAGED DURING CONSTRUCTION.



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Checked By
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Project Status

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TOWN REVIEW
TOWN REVIEW

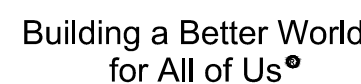
Issue Date

8/26/2020
1/22/2021
3/22/2021

Rev. #	Description	Date
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PARKING LOT SITE LAYOUT

C1.3



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TOWN REVIEW

Revision Issue

Rev. #	Description
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2	TOWN COMMENTS



RETAINING WALL

RETAINING WALL

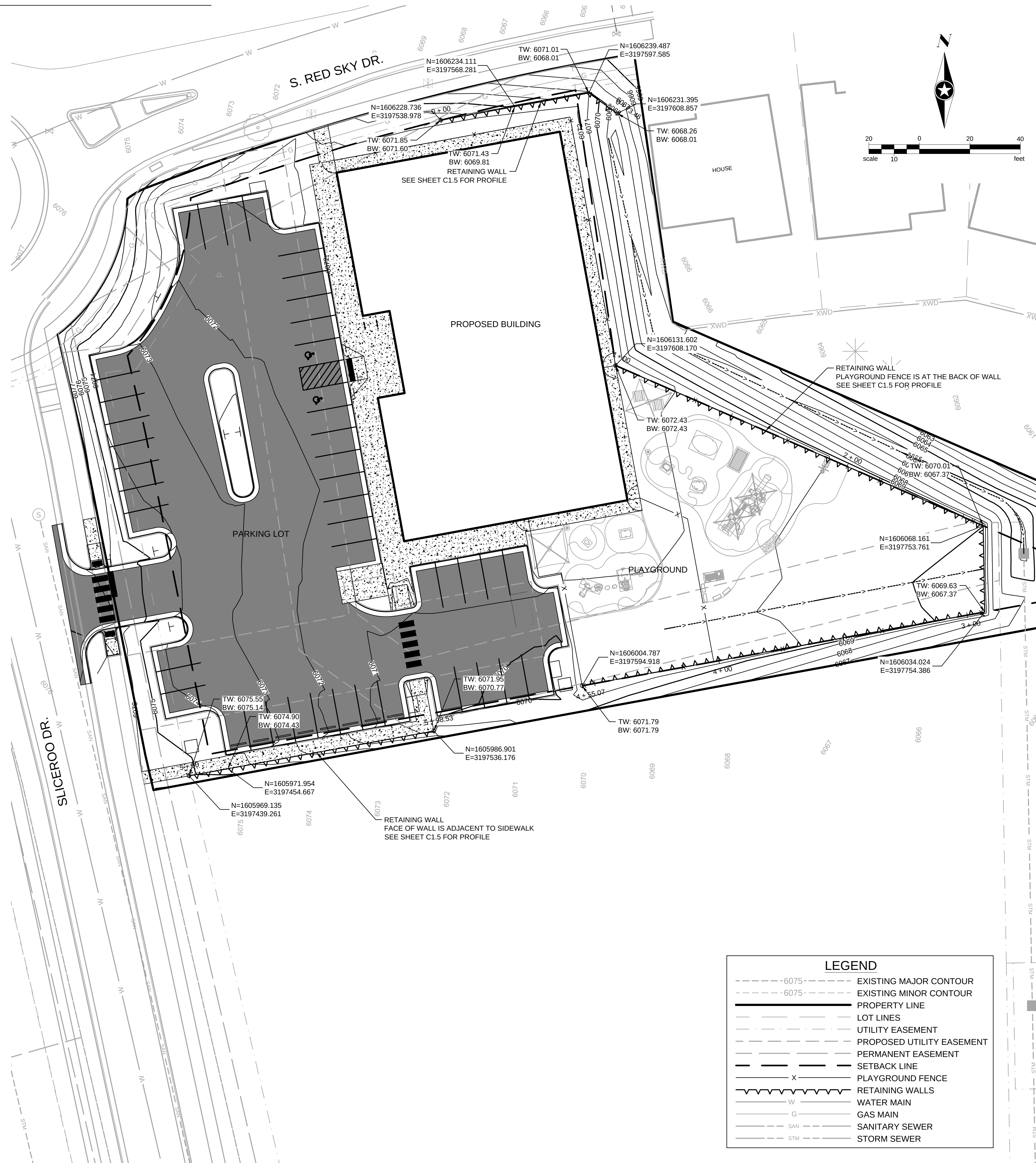
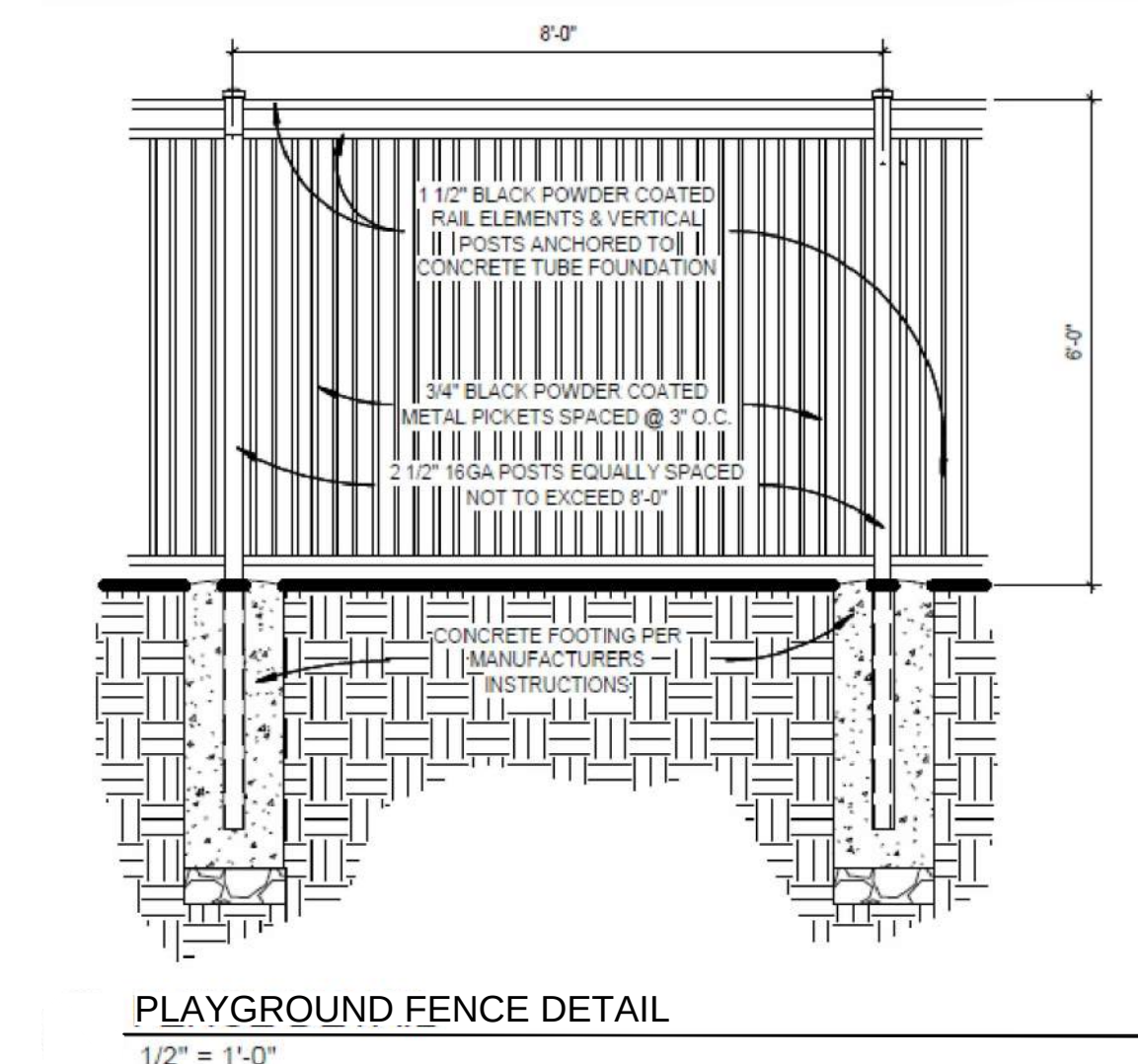
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61

C1.4

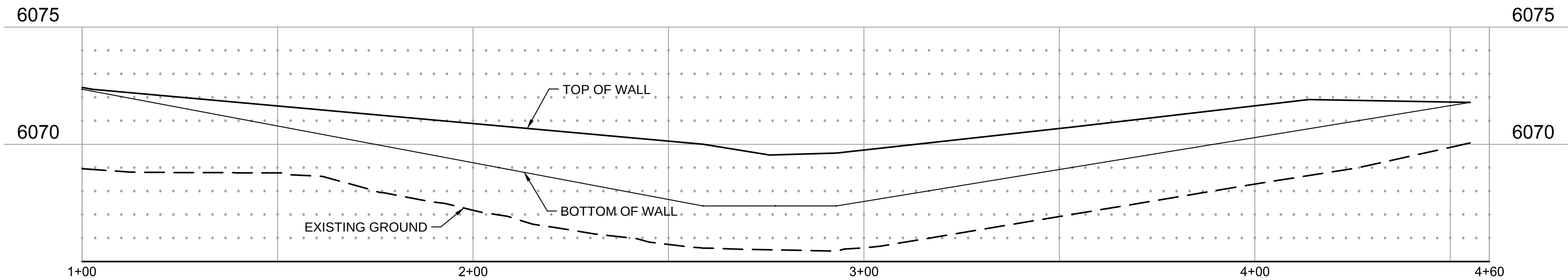
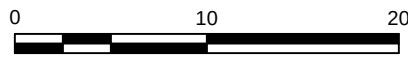
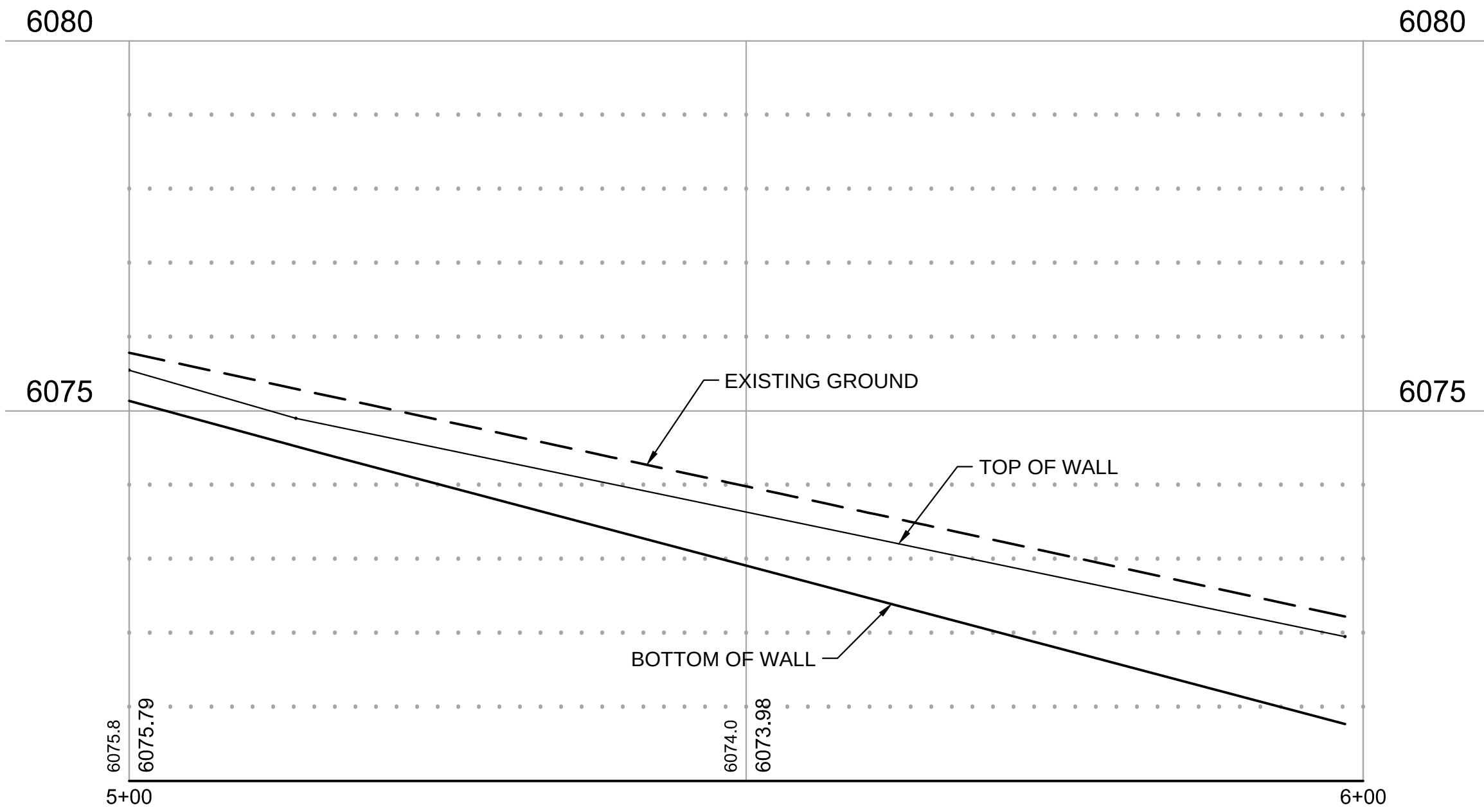
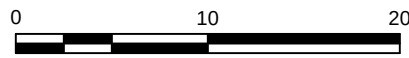
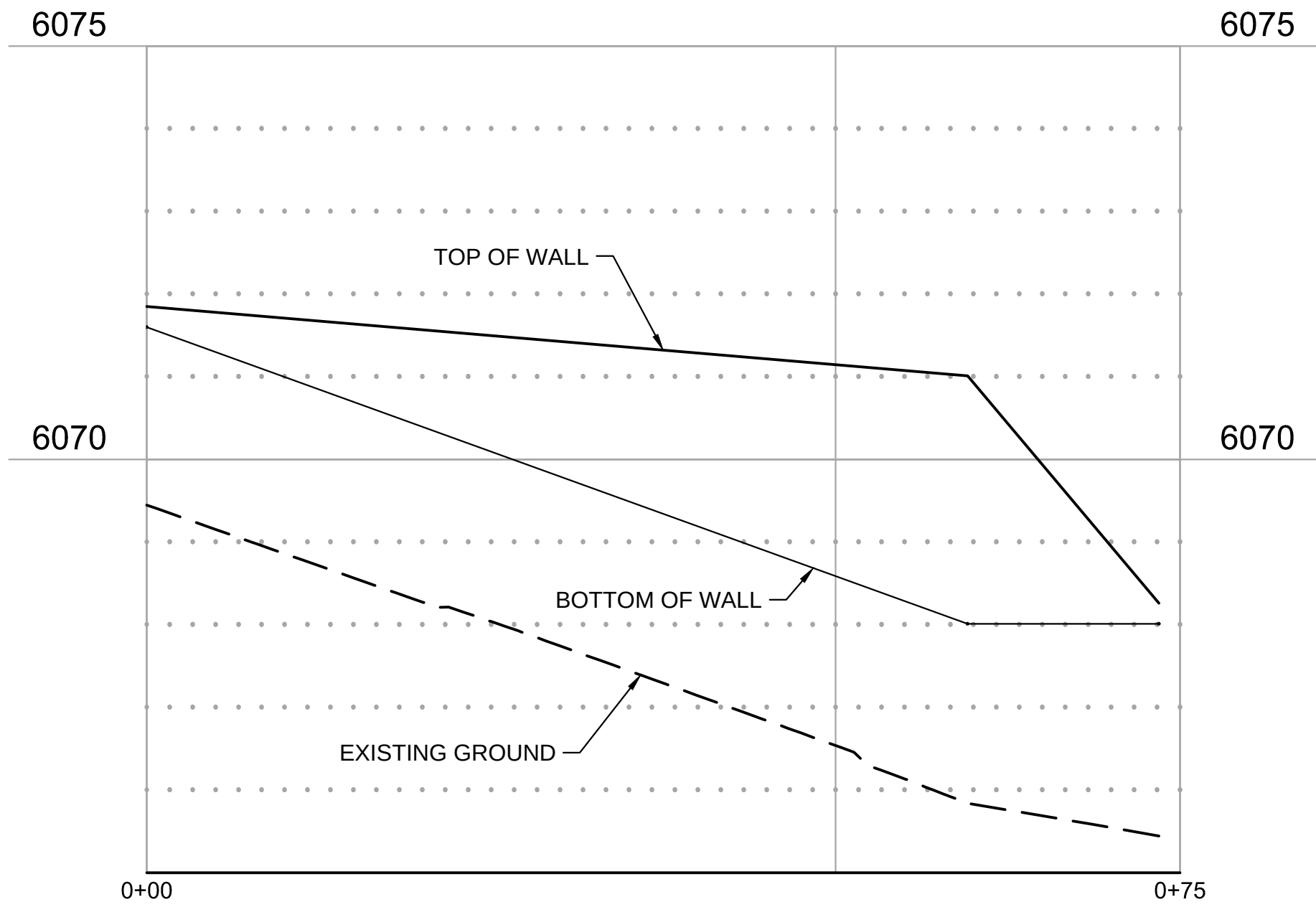


APPROXIMATE FINAL APPEARANCE OF WALL BLOCK



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NOTE:
RETAINING WALL PROFILES ARE SHOWN FOR
REFERENCE ONLY. ELEVATIONS SHOULD BE
DETERMINED FROM PLAN SHEETS.



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SEH Project
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Drawn By

NHOAC 156217
DBH
AMP

Project Status
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TOWN REVIEW

Issue Date
8/26/2020
1/22/2021
3/22/2021

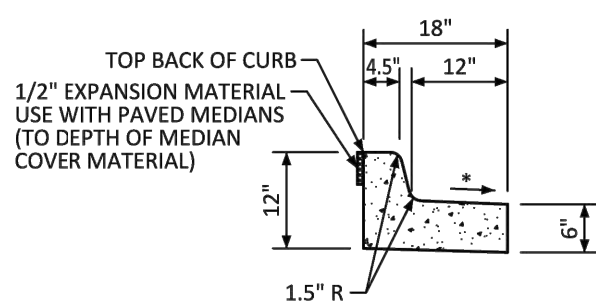
Rev. #	Description	Date
1	TOWN COMMENTS	1/22/21
2	TOWN COMMENTS	3/22/21

RETAINING WALL PROFILES

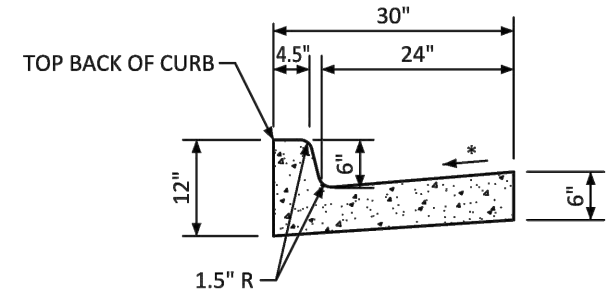
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C1.5

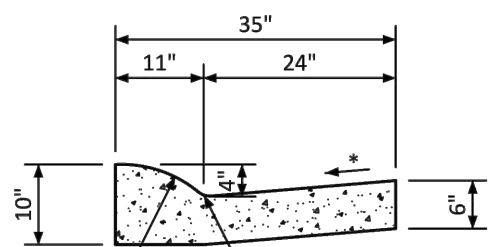
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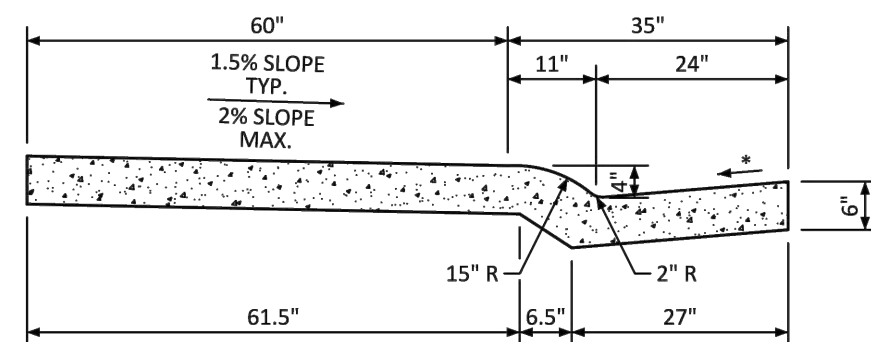
MEDIAN CURB AND GUTTER SECTION
(CDOT CURB AND GUTTER TYPE 2 (SECTION I-B))



VERTICAL CURB AND GUTTER SECTION
(CDOT CURB AND GUTTER TYPE 2 (SECTION II-B))

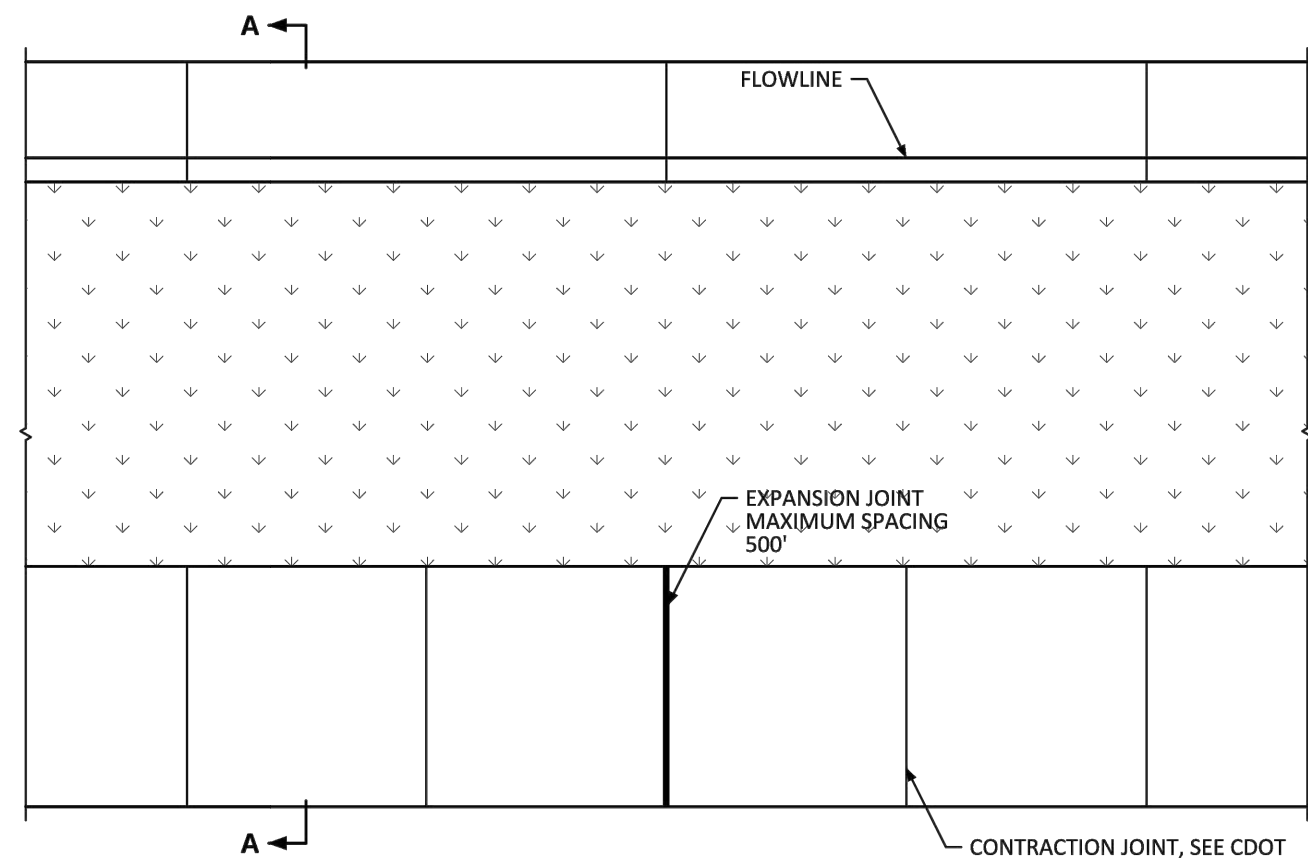


MOUNTABLE CURB AND GUTTER SECTION

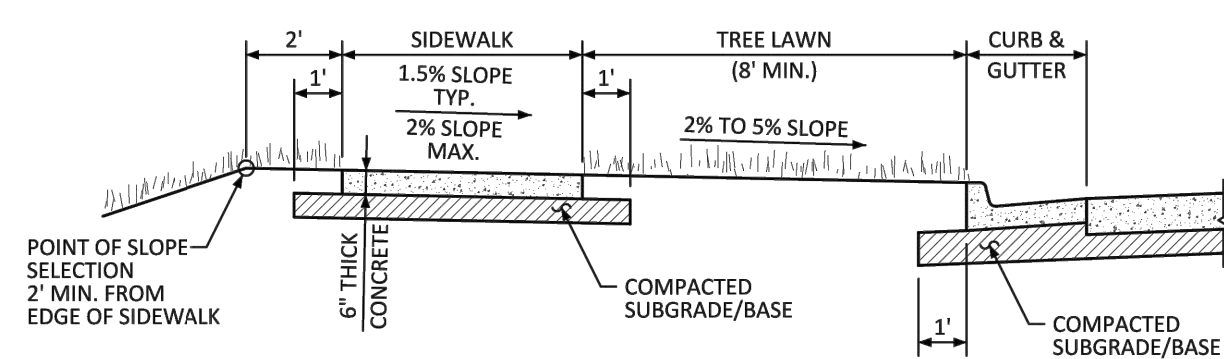


MONOLITHIC COMBINATION CURB, GUTTER AND SIDEWALK SECTION

* GUTTER CROSS SLOPE SHALL BE 1/2 IN./FT. WHEN DRAINING AWAY FROM CURB AND 1 IN./FT. WHEN DRAINING TOWARD CURB. DIRECTION OF SLOPE SHALL MATCH STREET CROSS SLOPE.



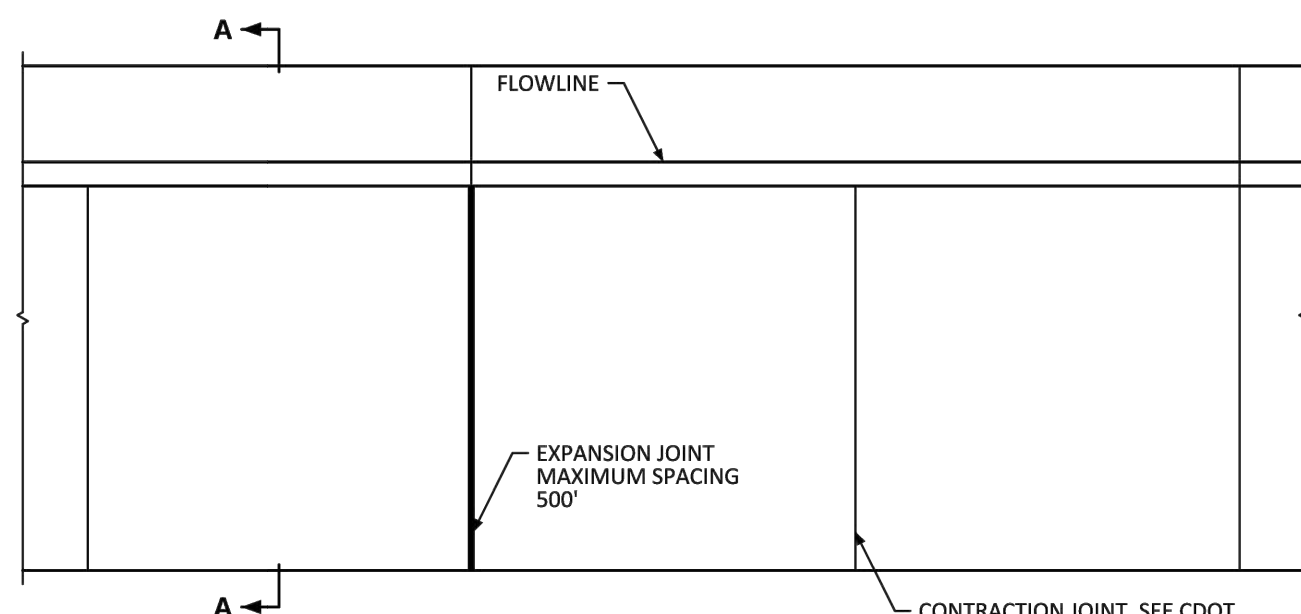
JOINT SPACING



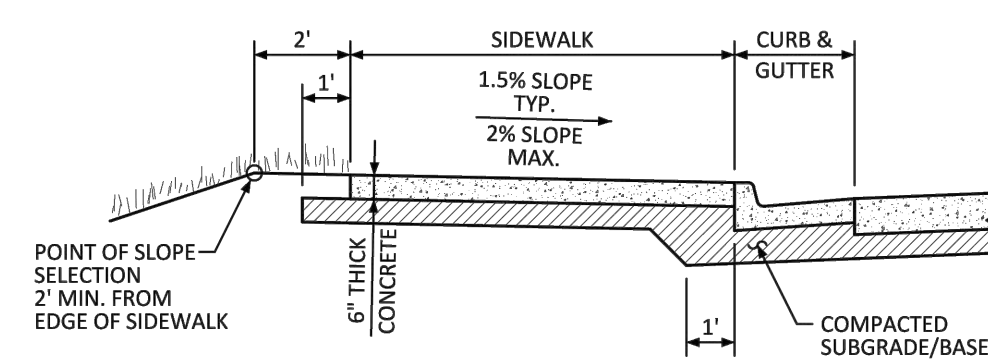
SECTION A-A

GENERAL NOTES

1. CONTRACTION JOINTS ON CONCRETE TRAILS SHALL BE SAWCUT.



JOINT SPACING

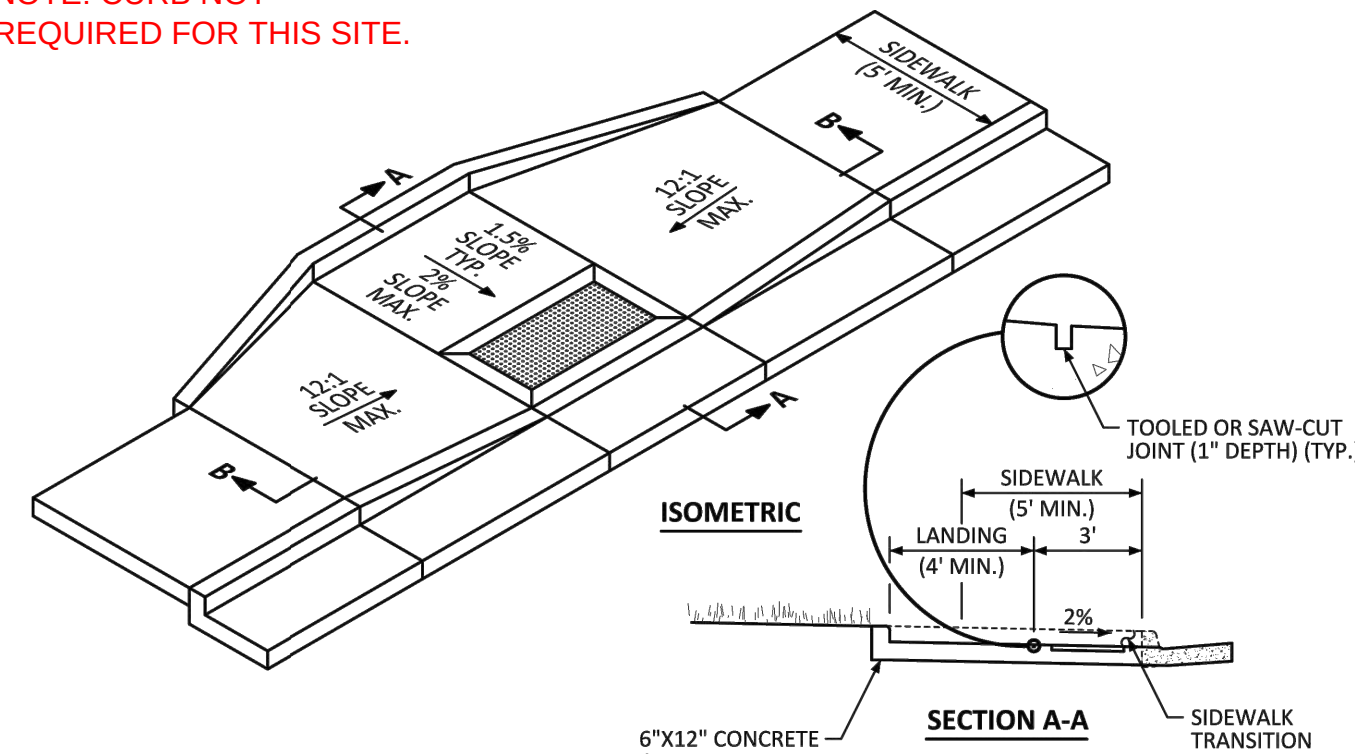


SECTION A-A

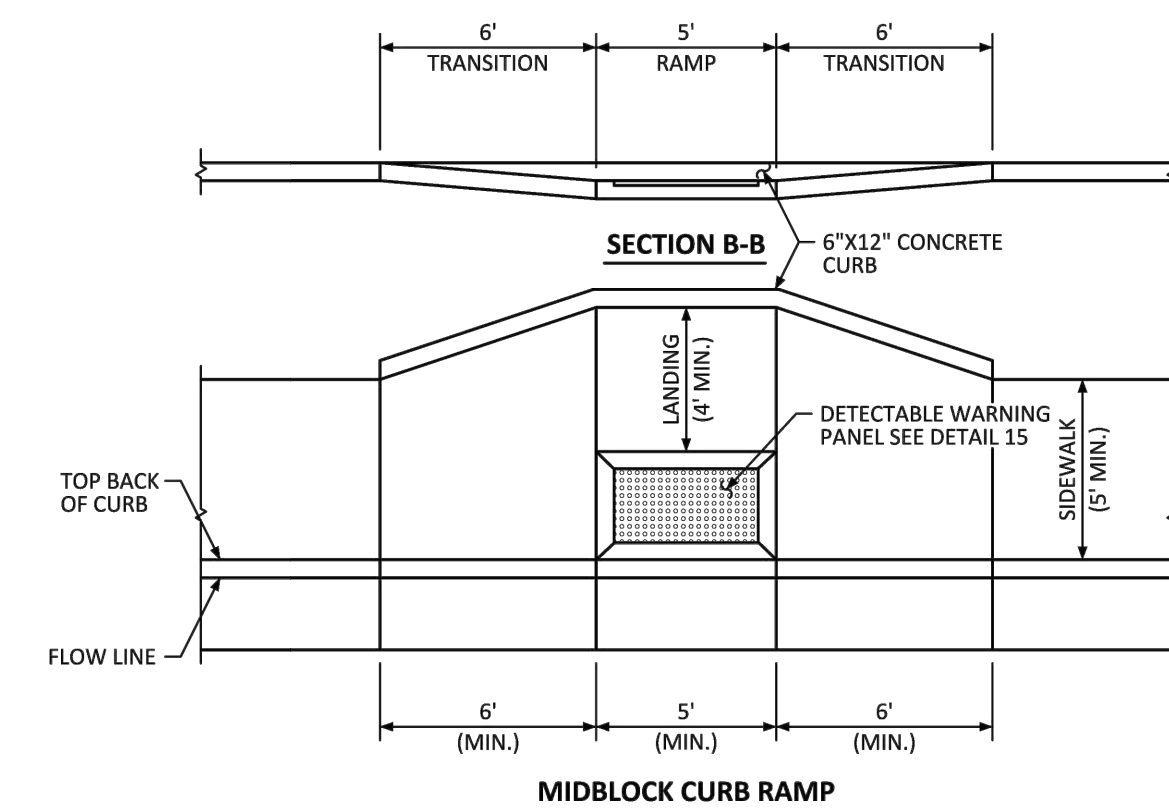
GENERAL NOTES

1. CONTRACTION JOINTS ON CONCRETE TRAILS SHALL BE SAWCUT.
2. TRANSVERSE SIDEWALK JOINTS SHALL MATCH CURB AND GUTTER JOINTS.

NOTE: CURB NOT REQUIRED FOR THIS SITE.



ISOMETRIC



SECTION B-B

MIDBLOCK CURB RAMP

GENERAL NOTES

1. CONTRACTION JOINTS ON CONCRETE TRAILS SHALL BE SAWCUT.
2. TRANSVERSE SIDEWALK JOINTS SHALL MATCH CURB AND GUTTER JOINTS.



CURB, GUTTER, AND SIDEWALK SECTIONS STANDARD DETAIL

DATE
DECEMBER
2016

DETAIL
3

1 OF 1



DETACHED SIDEWALK STANDARD DETAIL

DATE
DECEMBER
2016

DETAIL
4

1 OF 2



ATTACHED SIDEWALK STANDARD DETAIL

DATE
DECEMBER
2016

DETAIL
4

2 OF 2

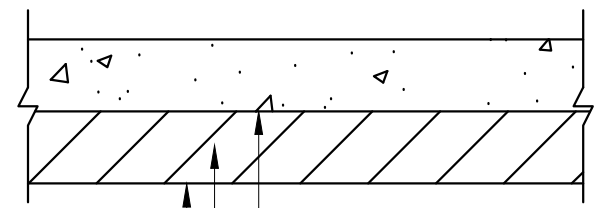


MIDBLOCK CURB RAMP LAYOUT STANDARD DETAIL

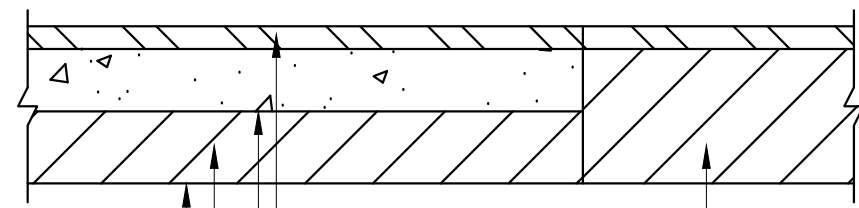
DATE
DECEMBER
2016

DETAIL
17

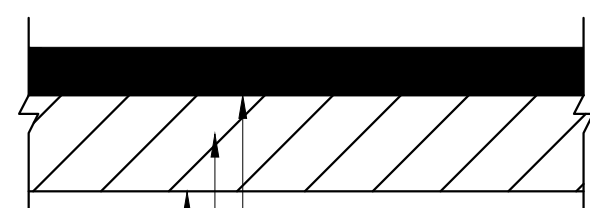
2 OF 2



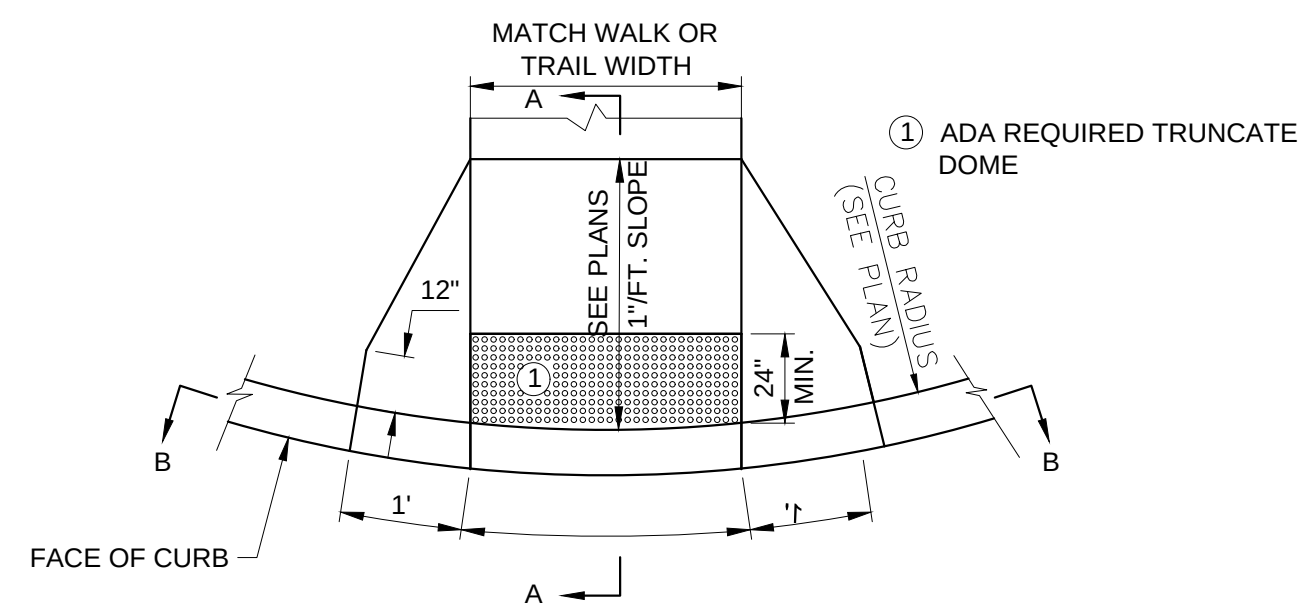
CONCRETE DUMPSTER PAD
NTS



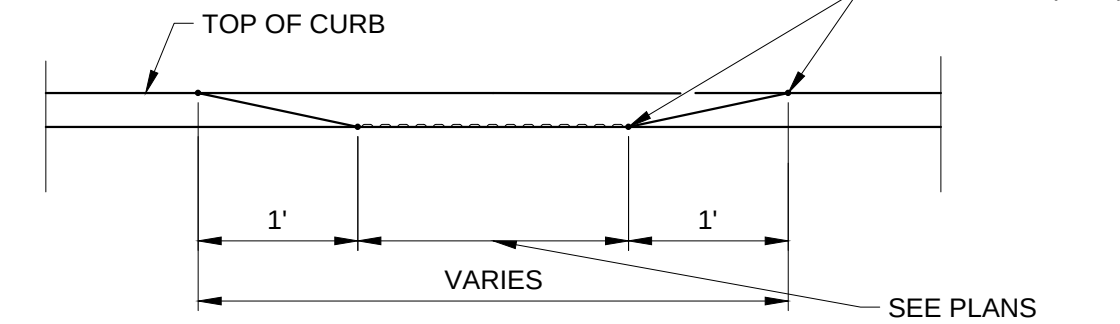
PLAYGROUND SECTION
NTS



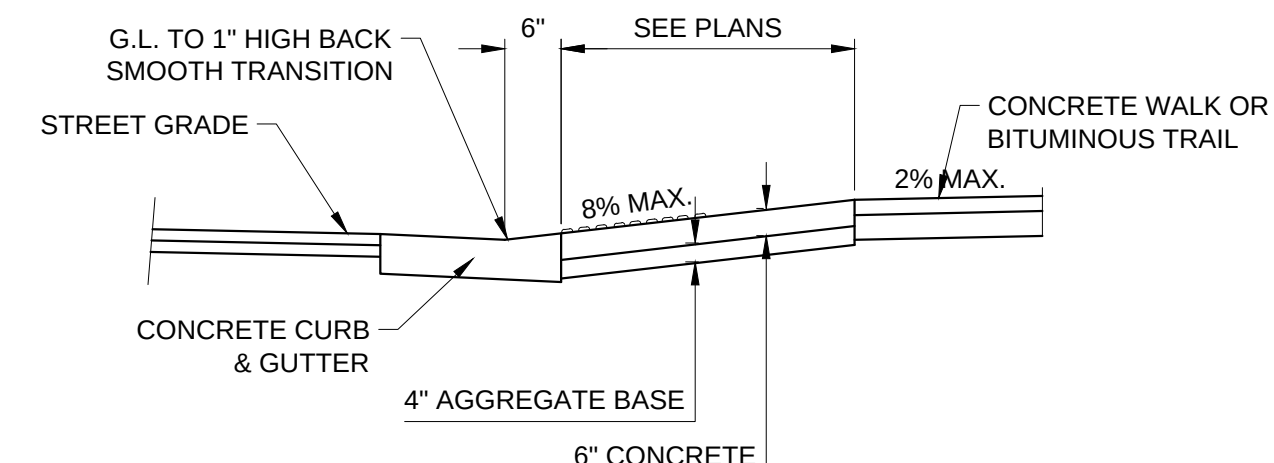
ASPHALT PARKING LOT
NTS



PLAN



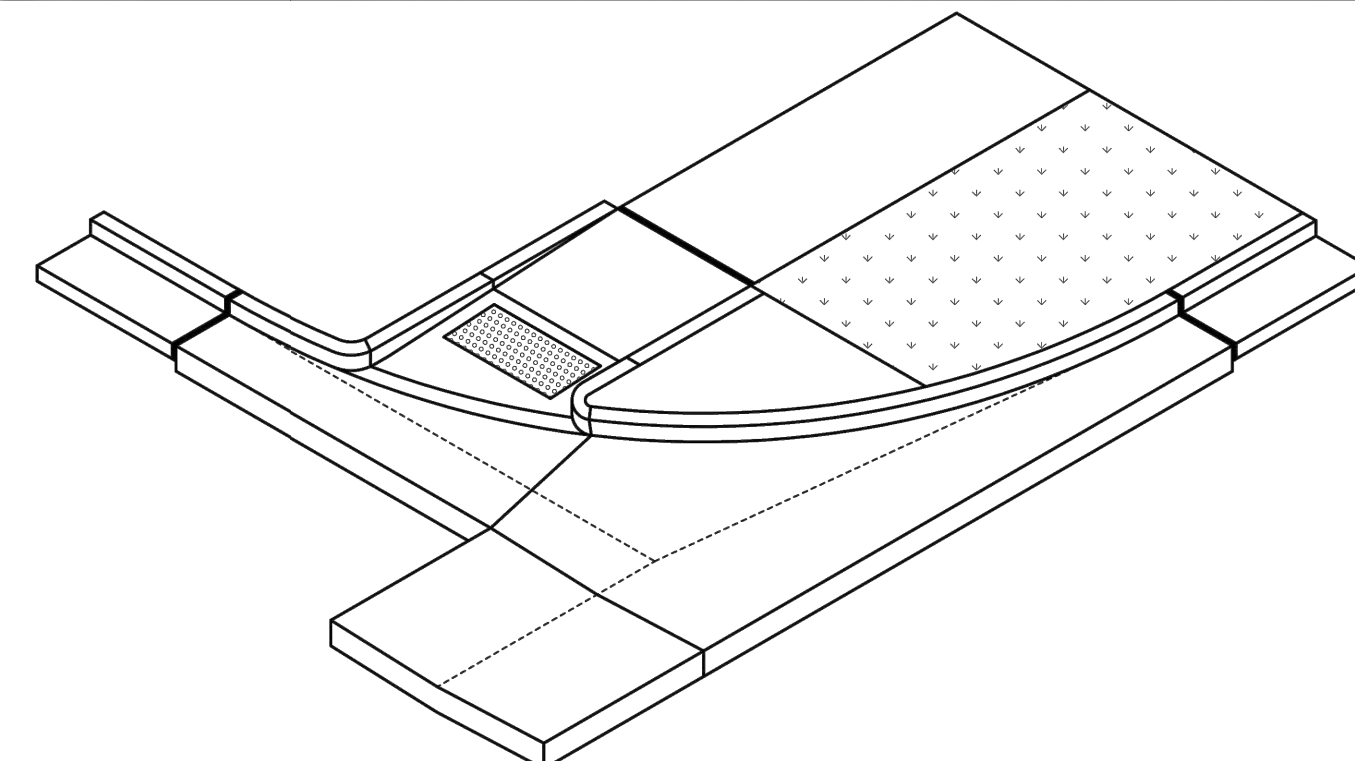
SECTION B-B



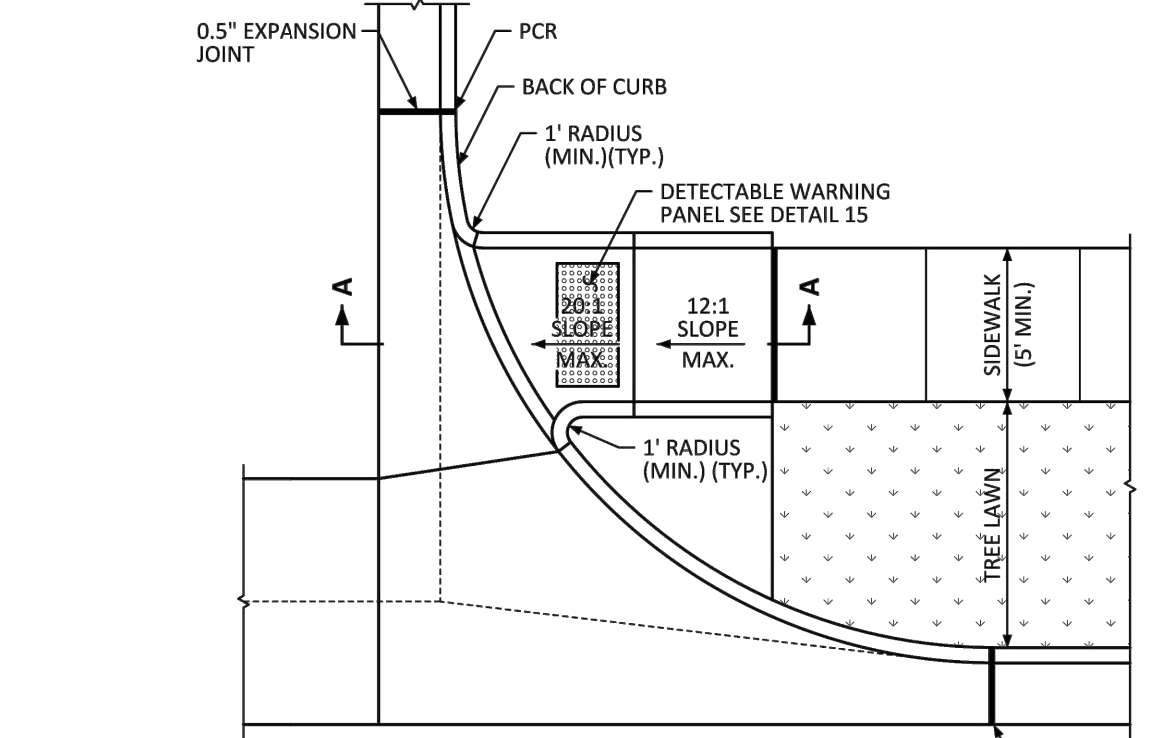
SECTION A-A

PEDESTRIAN CURB RAMP FOR SIDEWALK OR TRAIL

Revised:
Oct. 2011
SEH Plate No.
STR-04



ISOMETRIC



DIRECTIONAL CURB RAMP WITHIN RADIUS
(DETACHED SIDEWALK)

NO CHANGES ARE TO BE MADE TO THIS DRAWING WITHOUT WRITTEN PERMISSION OF THE TOWN OF PARKER.



DIRECTIONAL CURB RAMP WITHIN RADIUS LAYOUT STANDARD DETAIL

DATE
DECEMBER
2016

DETAIL
18

2 OF 2



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Drawn By

NHOAC 156217
DRH
AMP

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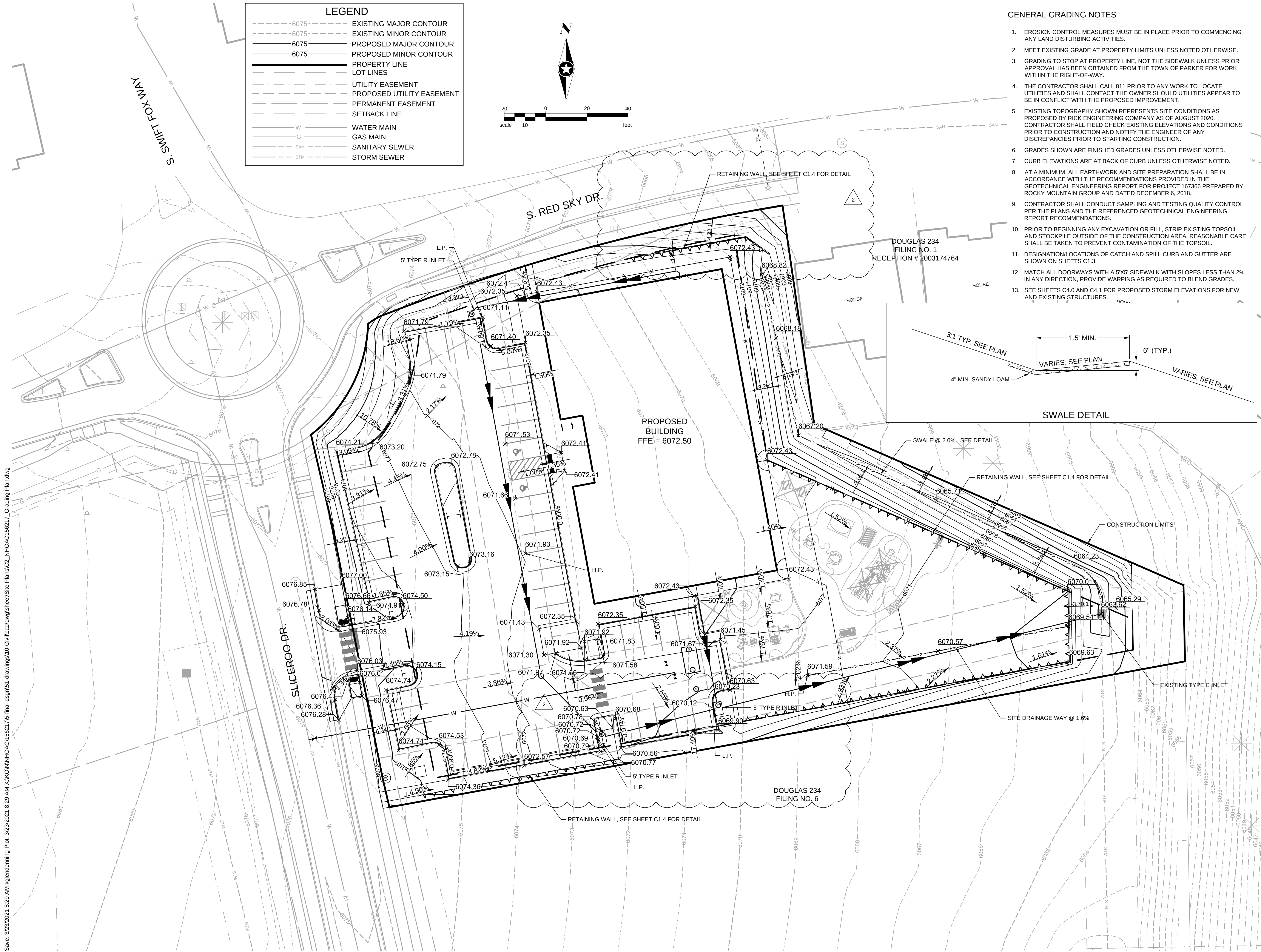
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CIVIL DETAILS

1

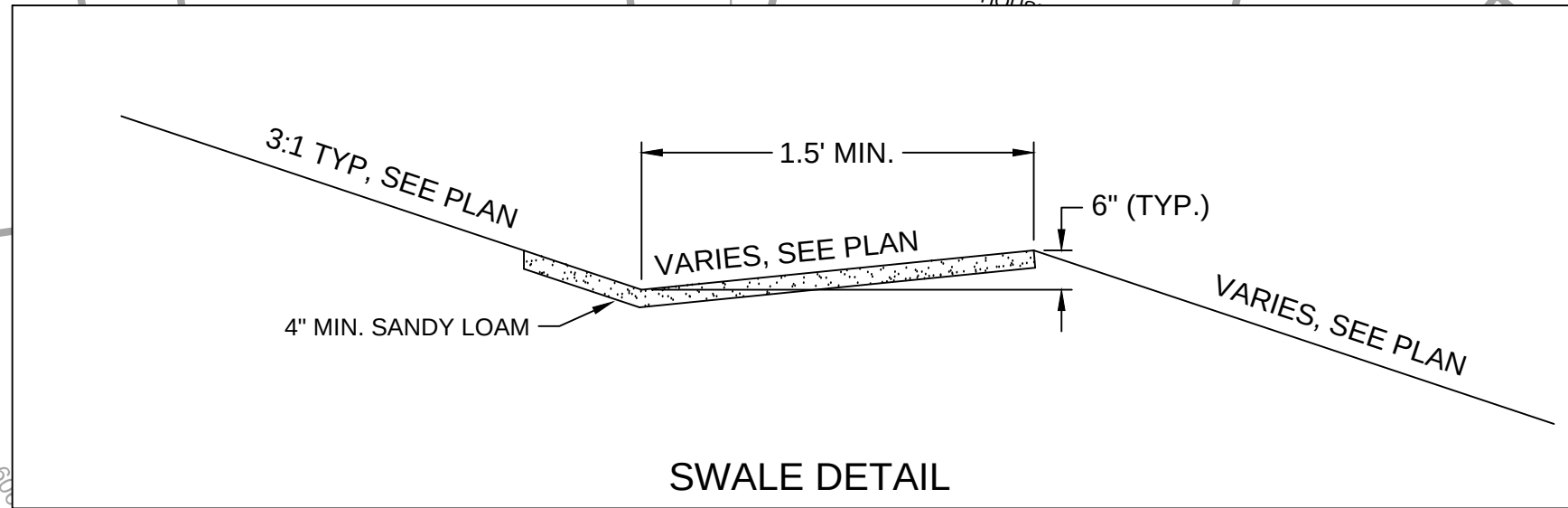
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GENERAL GRADING NOTES

1. EROSION CONTROL MEASURES MUST BE IN PLACE PRIOR TO COMMENCING ANY LAND DISTURBING ACTIVITIES.
2. MEET EXISTING GRADE AT PROPERTY LIMITS UNLESS NOTED OTHERWISE.
3. GRADING TO STOP AT PROPERTY LINE, NOT THE SIDEWALK UNLESS PRIOR APPROVAL HAS BEEN OBTAINED FROM THE TOWN OF PARKER FOR WORK WITHIN THE RIGHT-OF-WAY.
4. THE CONTRACTOR SHALL CALL 811 PRIOR TO ANY WORK TO LOCATE UTILITIES AND SHALL CONTACT THE OWNER SHOULD UTILITIES APPEAR TO BE IN CONFLICT WITH THE PROPOSED IMPROVEMENT.
5. EXISTING TOPOGRAPHY SHOWN REPRESENTS SITE CONDITIONS AS PROPOSED BY RICK ENGINEERING COMPANY AS OF AUGUST 2020. CONTRACTOR SHALL FIELD CHECK EXISTING ELEVATIONS AND CONDITIONS PRIOR TO CONSTRUCTION AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO STARTING CONSTRUCTION.
6. GRADES SHOWN ARE FINISHED GRADES UNLESS OTHERWISE NOTED.
7. CURB ELEVATIONS ARE AT BACK OF CURB UNLESS OTHERWISE NOTED.
8. AT A MINIMUM, ALL EARTHWORK AND SITE PREPARATION SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS PROVIDED IN THE GEOTECHNICAL ENGINEERING REPORT FOR PROJECT 167366 PREPARED BY ROCKY MOUNTAIN GROUP AND DATED DECEMBER 6, 2018.
9. CONTRACTOR SHALL CONDUCT SAMPLING AND TESTING QUALITY CONTROL PER THE PLANS AND THE REFERENCED GEOTECHNICAL ENGINEERING REPORT RECOMMENDATIONS.
10. PRIOR TO BEGINNING ANY EXCAVATION OR FILL, STRIP EXISTING TOPSOIL AND STOCKPILE OUTSIDE OF THE CONSTRUCTION AREA. REASONABLE CARE SHALL BE TAKEN TO PREVENT CONTAMINATION OF THE TOPSOIL.
11. DESIGNATION/LOCATIONS OF CATCH AND SPILL CURB AND GUTTER ARE SHOWN ON SHEETS C1.3.
12. MATCH ALL DOORWAYS WITH A 5'X5' SIDEWALK WITH SLOPES LESS THAN 2% IN ANY DIRECTION, PROVIDE WARPING AS REQUIRED TO BLEND GRADES.
13. SEE SHEETS C4.0 AND C4.1 FOR PROPOSED STORM ELEVATIONS FOR NEW AND EXISTING STRUCTURES.





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New Horizon Academy

**NEW HORIZON ACADEMY -
DOUGLAS 234 FILING, NO. 6**

PARKER, CO

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SEH Project
Checked By
Drawn By

NHOAC 156217
DBH
AMP

Project Status
TOWN REVIEW
TOWN REVIEW
TOWN REVIEW

Issue Date
8/26/2020
1/22/2021
3/22/2021

Rev. #	Description	Date
1	TOWN COMMENTS	1/22/21
2	TOWN COMMENTS	3/22/21

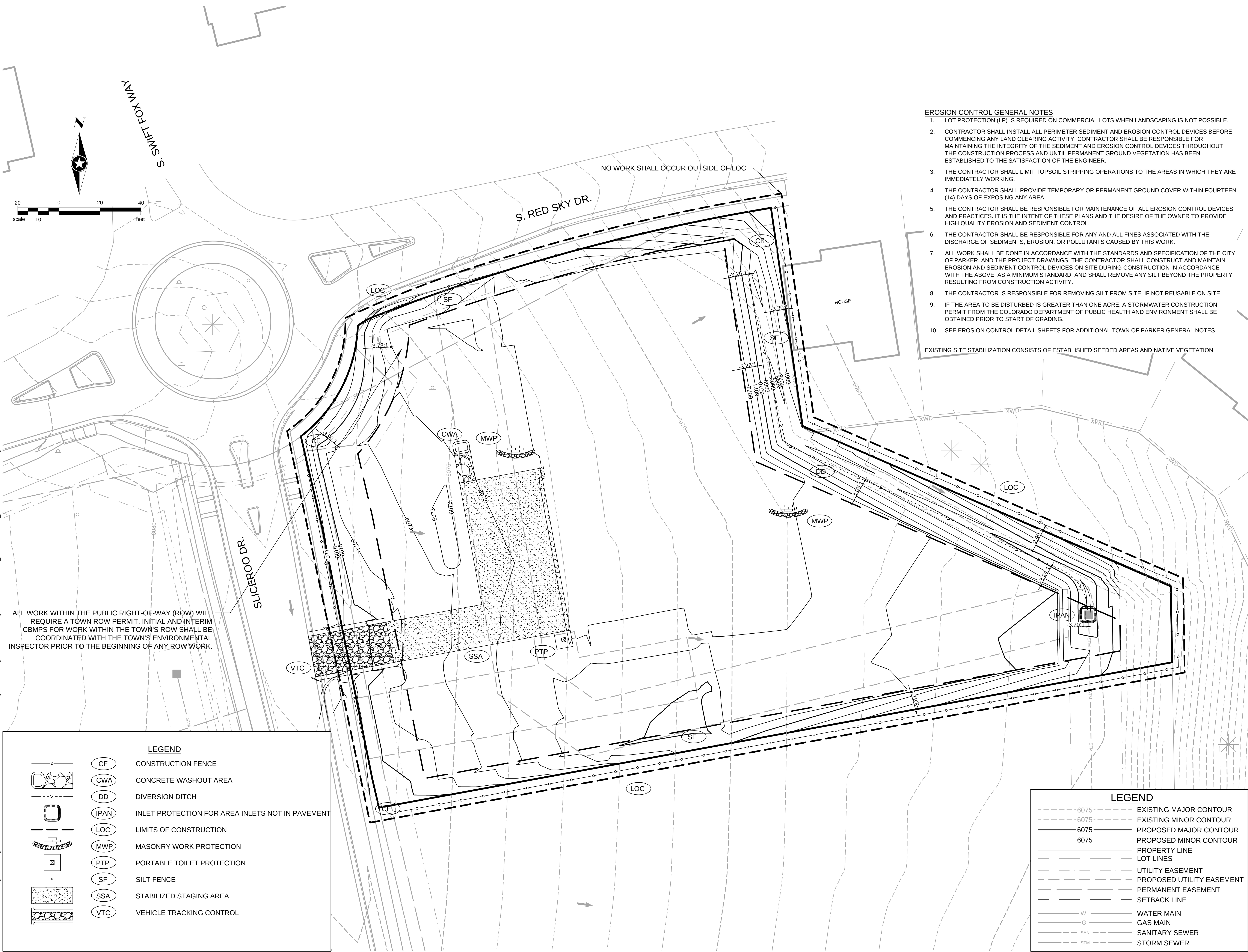
Revision Issue		
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GRADING PLAN

2

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EROSION CONTROL GENERAL NOTES

1. LOT PROTECTION (LP) IS REQUIRED ON COMMERCIAL LOTS WHEN LANDSCAPING IS NOT POSSIBLE.
2. CONTRACTOR SHALL INSTALL ALL PERIMETER SEDIMENT AND EROSION CONTROL DEVICES BEFORE COMMENCING ANY LAND CLEARING ACTIVITY. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE INTEGRITY OF THE SEDIMENT AND EROSION CONTROL DEVICES THROUGHOUT THE CONSTRUCTION PROCESS AND UNTIL PERMANENT GROUND VEGETATION HAS BEEN ESTABLISHED TO THE SATISFACTION OF THE ENGINEER.
3. THE CONTRACTOR SHALL LIMIT TOPSOIL STRIPPING OPERATIONS TO THE AREAS IN WHICH THEY ARE IMMEDIATELY WORKING.
4. THE CONTRACTOR SHALL PROVIDE TEMPORARY OR PERMANENT GROUND COVER WITHIN FOURTEEN (14) DAYS OF EXPOSING ANY AREA.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF ALL EROSION CONTROL DEVICES AND PRACTICES. IT IS THE INTENT OF THESE PLANS AND THE DESIRE OF THE OWNER TO PROVIDE HIGH QUALITY EROSION AND SEDIMENT CONTROL.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL FINES ASSOCIATED WITH THE DISCHARGE OF SEDIMENTS, EROSION, OR POLLUTANTS CAUSED BY THIS WORK.
7. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATION OF THE CITY OF PARKER, AND THE PROJECT DRAWINGS. THE CONTRACTOR SHALL CONSTRUCT AND MAINTAIN EROSION AND SEDIMENT CONTROL DEVICES ON SITE DURING CONSTRUCTION IN ACCORDANCE WITH THE ABOVE, AS A MINIMUM STANDARD, AND SHALL REMOVE ANY SILT BEYOND THE PROPERTY RESULTING FROM CONSTRUCTION ACTIVITY.
8. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING SILT FROM SITE, IF NOT REUSABLE ON SITE.
9. IF THE AREA TO BE DISTURBED IS GREATER THAN ONE ACRE, A STORMWATER CONSTRUCTION PERMIT FROM THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT SHALL BE OBTAINED PRIOR TO START OF GRADING.
10. SEE EROSION CONTROL DETAIL SHEETS FOR ADDITIONAL TOWN OF PARKER GENERAL NOTES.

EXISTING SITE STABILIZATION CONSISTS OF ESTABLISHED SEEDED AREAS AND NATIVE VEGETATION.

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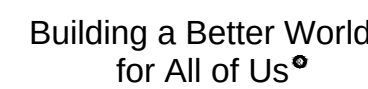
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NOT FOR
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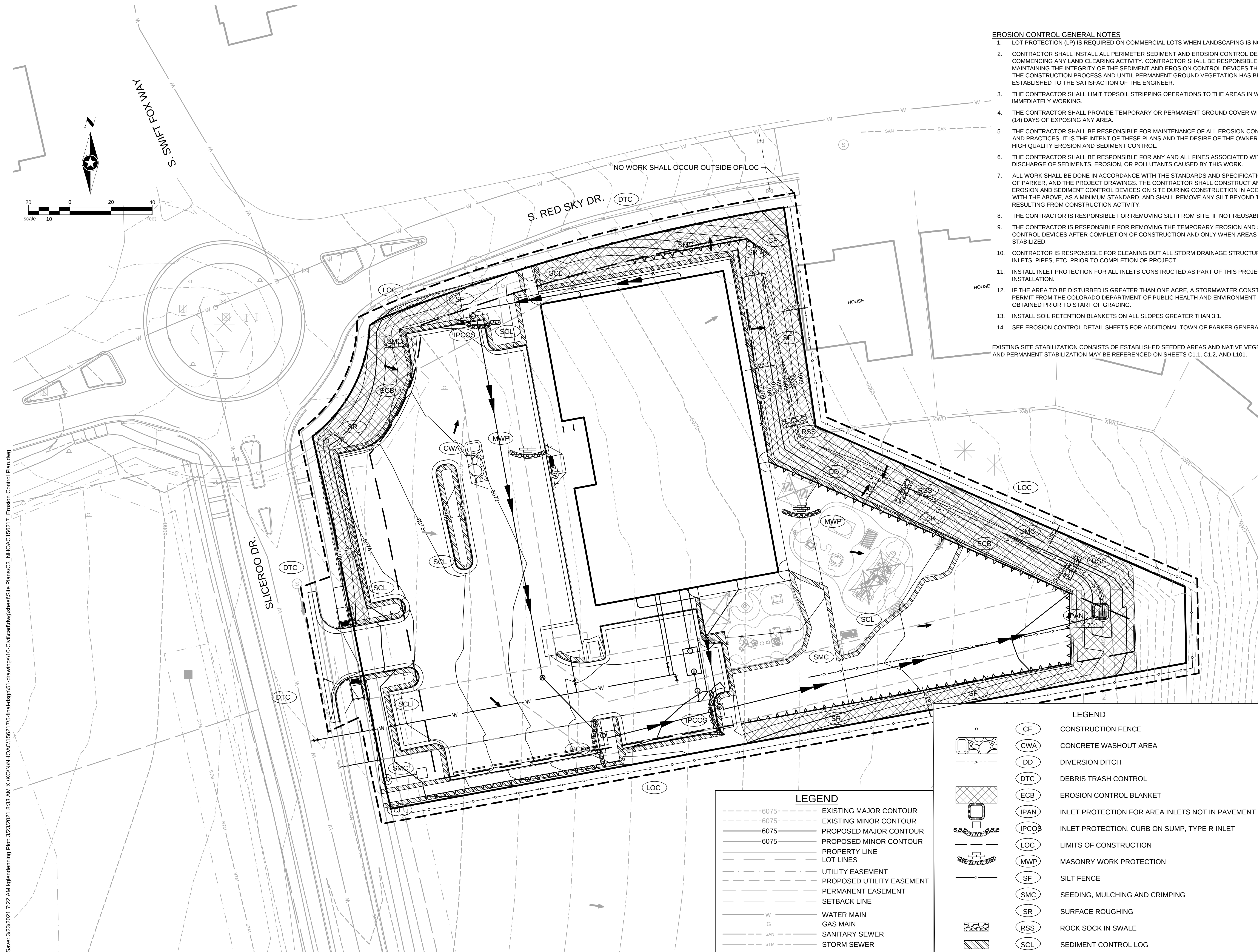
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Rev. #	Description
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2	TOWN COMMENTS

INTERIM-FINAL CBMP PLAN

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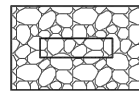
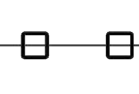
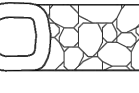
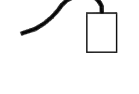
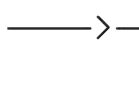
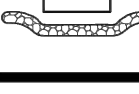
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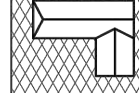
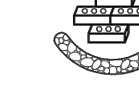
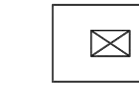
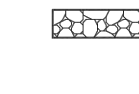
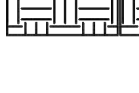
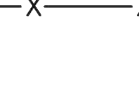
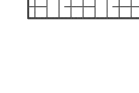
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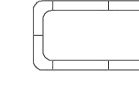
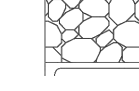
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	CD	CHECK DAM
	CF	CONSTRUCTION FENCE
	CP	CULVERT PROTECTION
	CWA	CONCRETE WASHOUT AREA
	D	DEWATERING
	DD	DIVERSION DITCH
	DP	DETENTION POND PROTECTION
	DTC	DEBRIS TRASH CONTROL
	ECB	EROSION CONTROL BLANKET
	IPAN	INLET PROTECTION FOR AREA INLETS NOT IN PAVEMENT
	IPAP	INLET PROTECTION FOR AREA INLETS IN PAVEMENT
	IPCOG	INLET PROTECTION, CURB ON-GRADE, TYPE R INLET
	IPCOS	INLET PROTECTION, CURB ON SUMP, TYPE R INLET

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	LP	LOT PROTECTION
	MWP	MASONRY WORK PROTECTION
	PTP	PORTABLE TOILET PROTECTION
	RCSC	ROUGH CUT STREET CONTROL
	RS	ROCK SOCK
	RSS	ROCK SOCK IN SWALE
	SB	STRAW BALE
	SCL	SEDIMENT CONTROL LOGS
	SF	SILT FENCE
	SMC	SEEDING, MULCHING AND CRIMPING
	SR	SURFACE ROUGHING
	SSA	STABILIZED STAGING AREA
	STP	SIDEWALK TRANSITION PROTECTION

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	TI	TEMPORARY IRRIGATION
	TSB	TEMPORARY SEDIMENT BASIN
	VTC	VEHICLE TRACKING CONTROL

NO CHANGES ARE TO BE MADE TO THIS DRAWING WITHOUT WRITTEN PERMISSION OF THE TOWN OF PARKER.

1. GRADING, DRILLING, CLEARING, EXCAVATING, BACK-FILLING, SOIL STRIPPING, SOIL IMPORTING EXPORTING OR ANY OTHER FORM OF SOIL DISTURBANCE SHALL NOT COMMENCE UNTIL A TOWN OF PARKER GRADING/EXCAVATION PERMIT HAS BEEN ISSUED.
2. THE TOWN OF PARKER GRADING/EXCAVATION PERMIT IS VALID FOR A PERIOD OF 2 YEARS FROM THE DATE OF ISSUANCE. ANY LAPSE IN PERMIT COVERAGE MAY RESULT IN THE ISSUANCE OF A STOP WORK ORDER AND/OR FINES.
3. ALL EROSION AND SEDIMENT CONTROL BMPs SHALL BE INSTALLED ACCORDING TO THE CBMP PLAN INSTALLATION NOTES AND DETAILS AND/OR PERMITTED VARIANCES. ALL MATERIALS, WORKMANSHIP AND INSTALLATION METHODS ARE SUBJECT TO INSPECTION BY THE TOWN'S INSPECTOR. THE TOWN OF PARKER RESERVES THE RIGHT TO ACCEPT OR REJECT ANY SUCH MATERIALS, WORKMANSHIP AND/OR INSTALLATION METHODS THAT DO NOT CONFORM TO THE CBMP PLAN AND/OR PERMITTED VARIANCES.
4. THE EROSION CONTROL SUPERVISOR SHALL REVISE OR MODIFY THE EROSION AND SEDIMENT CONTROL MEASURES IF IT BECOMES APPARENT THAT THE ORIGINAL PLAN IS INADEQUATE, OR AS A RESULT OF DEFICIENCIES IDENTIFIED DURING INSPECTIONS PERFORMED BY THE TOWN'S INSPECTOR.
5. THE INSTALLATION OF ADDITIONAL EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMPs) MAY BE REQUIRED OF THE EROSION CONTROL SUPERVISOR, PROPERTY OWNER, SITE DEVELOPER, CONTRACTOR AND/OR THEIR AUTHORIZED AGENTS AT ANY TIME THROUGHOUT THE DURATION OF THE PROJECT CONSTRUCTION AND/OR SUBSEQUENT REVEGETATION PERIOD.
6. THE EROSION CONTROL SUPERVISOR SHALL BE RESPONSIBLE FOR ENSURING THAT THE SITE REMAINS IN COMPLIANCE WITH THE NOTICE OF NUISANCE REPORTS (a.k.a, CONSTRUCTION SITE RUNOFF CONTROL INSPECTION REPORTS), APPROVED CBMP PLAN(S) AND THE TOWN OF PARKER STORM DRAINAGE AND ENVIRONMENTAL CRITERIA MANUAL.
7. THE EROSION CONTROL SUPERVISOR SHALL BE READILY AVAILABLE TO DISCUSS AND CORRECT ANY PROBLEMS THAT MAY ARISE RELATING TO GRADING, EROSION AND SEDIMENT CONTROL.
8. IF IT IS ANTICIPATED THAT ALL OR A PORTION OF THE PROJECT WILL OCCUR DURING SEASONS SUSCEPTIBLE TO SNOWFALL, THE USE OF CERTAIN EROSION AND SEDIMENT CONTROL BMPs ADJACENT TO PUBLIC ROADWAYS MAY NEED TO BE RECONSIDERED DUE TO THE NATURE OF SNOW REMOVAL OPERATIONS. AN APPROVED ALTERNATIVE MAY BE NECESSARY TO MINIMIZE DAMAGE FROM THESE OPERATIONS. THE TOWN OF PARKER ASSUMES NO RESPONSIBILITY FOR DAMAGE TO ANY BMPs AS A RESULT OF SNOW PLOWING AND SNOW REMOVAL.
9. AREAS OF LAND DISTURBANCE EQUAL TO 40 ACRES OR GREATER SHALL NOT BE EXPOSED FOR MORE THAN 30 CONSECUTIVE DAYS WITHOUT TEMPORARY OR PERMANENT STABILIZATION.
10. AUTHORIZED EXEMPTIONS MAY BE ALLOWED TO THE 40-ACRE LIMIT FOR REMOVAL AND STORAGE OF CUT MATERIAL WHERE (A) GEOTECHNICAL LIMITATIONS RESTRICT THE USE OF TEMPORARY OR PERMANENT STABILIZATION OF THE STORED MATERIAL (E.G., SWELLING SOILS, ROCK) AND (B) WHEN THE OWNER CAN DEMONSTRATE THAT THE 40-ACRE LIMIT IS PHYSICALLY AND/OR FINANCIALLY IMPRACTICABLE. FOR SITES GRANTED THIS EXEMPTION, A PHASING AND EARTHWORK QUANTITIES PLAN SHALL BE SUBMITTED TO THE PUBLIC WORKS DEPARTMENT AND APPROVED PRIOR TO THE COMMENCEMENT OF LAND DISTURBANCE ACTIVITIES. SUBMITTAL REQUIREMENTS INCLUDE:
 - (I) PHASING PLAN SHOWING CUT AND FILL VOLUMES AND LOCATIONS FOR EACH PHASE AND PROJECT TOTALS.
 - (II) EARTHWORK QUANTITY PLAN SHOWING CUT AND FILL VOLUMES AND LOCATIONS FOR EACH PHASE AND PROJECT TOTALS.
 - (III) BMP PLAN SHOWING SPECIFIC EROSION AND SEDIMENT CONTROLS FOR EACH PHASE.



CBMP
CONSTRUCTION BEST MANAGEMENT PRACTICES

1 OF 3
Oct. 2013

LEGEND



CBMP
CONSTRUCTION BEST MANAGEMENT PRACTICES

2 OF 3
Oct. 2013

LEGEND



CBMP
CONSTRUCTION BEST MANAGEMENT PRACTICES

3 OF 3
Oct. 2013

LEGEND



CBMP
CONSTRUCTION BEST MANAGEMENT PRACTICES

1 OF 4
Oct. 2013

GEN NOTES

NO CHANGES ARE TO BE MADE TO THIS DRAWING WITHOUT WRITTEN PERMISSION OF THE TOWN OF PARKER.

11. ANY EROSION AND SEDIMENT CONTROL BMPs THAT ARE DAMAGED OR IN NEED OF MAINTENANCE OR REPLACEMENT SHALL BE CORRECTED AS SOON AS POSSIBLE, IMMEDIATELY IN MOST CASES.
12. ALL DEFICIENCIES LISTED ON THE NOTICE OF NUISANCE FORM SHALL BE COMPLETED AS SOON AS POSSIBLE, IMMEDIATELY IN MOST CASES. ALL REQUIRED ACTIONS MUST BE IN THE CORRECTED FORM DURING THE FOLLOW-UP INSPECTION.
13. THE EROSION CONTROL SUPERVISOR IS RESPONSIBLE FOR ENSURING THAT ALL STREETS, CURBS, GUTTERS, SIDEWALKS, DRIVEWAYS, PARKING LOTS, ALLEYS, TRICKLE CHANNELS, AND/OR OTHER IMPERVIOUS SURFACES IMPACTED BY CONSTRUCTION ACTIVITIES ARE THOROUGHLY CLEANED THROUGHOUT THE DAY IF THEY BECOME SOILED. THESE AREAS MUST ALSO BE THOROUGHLY CLEAN BEFORE THE END OF THE WORK DAY.
14. BULK STORAGE STRUCTURES FOR PETROLEUM PRODUCTS AND OTHER CHEMICALS SHALL HAVE ADEQUATE PROTECTION SO AS TO CONTAIN ALL SPILLS AND PREVENT ANY SPILLED MATERIAL FROM ENTERING STATE WATERS.
15. ALL TRASH RECEPTACLES ON SITE SHALL BE FREE OF HOLES, CRACKS, GAPS, AND/OR OTHER PERMEABLE AREAS THAT MAY ALLOW FOR THE DISCHARGE OF POLLUTANTS.
16. ALL TRASH RECEPTACLES ON SITE SHALL BE EMPTIED AT A FREQUENCY AS TO ENSURE THAT THE TRASH REMAINS CONFINED TO THE RECEPTACLE.
17. ALL LOOSE TRASH AND LITTER ASSOCIATED WITH THE PROJECT MUST BE REMOVED AND PROPERLY DISCARDED ON A DAILY BASIS.
18. ALL PORTABLE TOILETS SHALL BE STAKED DOWN AT ALL TIMES USING U-SHAPED REBAR STAKES. THE PORTABLE TOILETS SHALL ALSO BE PLACED A MINIMUM DISTANCE OF 10 FEET FROM ALL IMPERVIOUS SURFACES, INCLUDING, BUT NOT LIMITED TO STREETS CURBS, GUTTERS, SIDEWALKS AND PARKING LOTS.
19. THE EROSION CONTROL SUPERVISOR SHALL MAINTAIN STRICT ADHERENCE TO THE LIMITS OF CONSTRUCTION AND PROPERTY LIMITS FOR ALL MATERIALS, VEHICLES AND EQUIPMENT. FAILURE TO ABIDE BY THIS REQUIREMENT MAY RESULT IN THE ISSUANCE OF A STOP WORK ORDER.
20. ALL CONSTRUCTION TRAFFIC MUST ENTER AND EXIT THE SITE THROUGH THE APPROVED ACCESS POINT(S). A VEHICLE TRACKING CONTROL PAD IS REQUIRED AT ALL APPROVED ACCESS POINTS TO THE SITE. EXCEPTIONS MAY BE CONSIDERED FOR CONSTRUCTION ACTIVITY OCCURRING IMMEDIATELY ADJACENT TO PAVED AREAS AND WHERE ALTERNATIVE BMPs ARE IMPLEMENTED. SUCH ACTIVITY MAY INCLUDE, BUT NOT BE LIMITED TO RESIDENTIAL CONSTRUCTION, UTILITY CONSTRUCTION, ETC.
21. NO PERMANENT SLOPES GREATER THAN 3:1 ARE ALLOWED.
22. ALL PERMANENT SLOPES STEEPER THAN 4:1 (HORIZONTAL TO VERTICAL) SHALL REQUIRE EROSION CONTROL BLANKET(S). TEMPORARY SLOPES IN TEMPORARY SEDIMENT BASINS THAT ARE STEEPER THAN 4:1 MAY REQUIRE EROSION CONTROL BLANKETS.
23. THE EROSION CONTROL SUPERVISOR SHALL BE RESPONSIBLE FOR CORRECTING ANY ADVERSE IMPACTS THAT OCCUR TO NEIGHBORING PROPERTIES. THE EROSION CONTROL SUPERVISOR MUST OBTAIN PERMISSION FROM LAND OWNERS PRIOR TO ENTERING SUCH PROPERTY.
24. A WATER SOURCE SHALL BE AVAILABLE ONSITE DURING CONSTRUCTION ACTIVITIES, AND UTILIZED TO MINIMIZE FUGITIVE DUST. ALTERNATIVE BMPs MAY BE REQUIRED IF INITIAL ATTEMPTS TO SUPPRESS DUST ARE UNSUCCESSFUL.

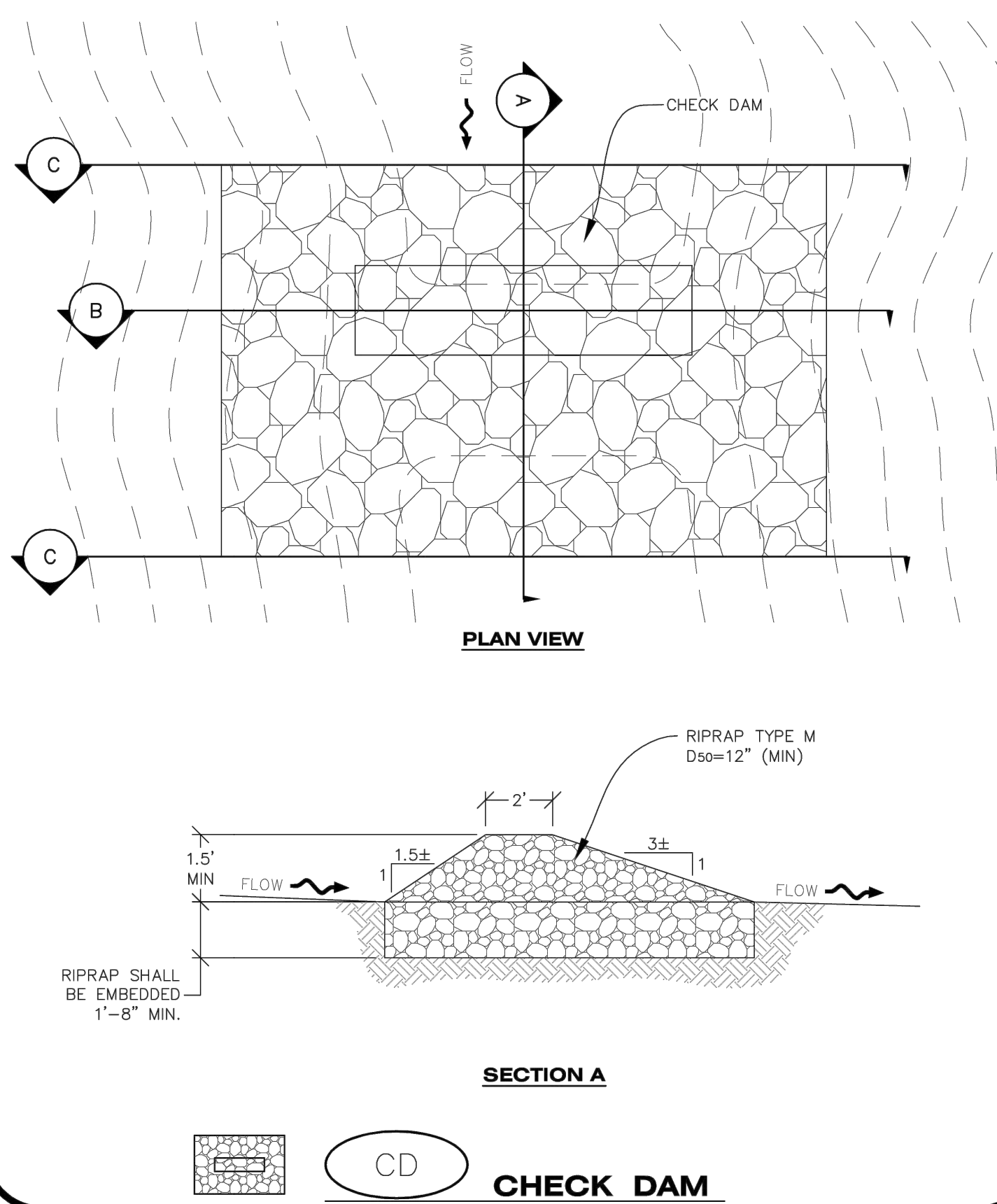
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25. ALL CHEMICAL OR HAZARDOUS MATERIAL SPILLS, INCLUDING CONCRETE WASHOUT WATER, WHICH MAY ENTER WATERS OF THE STATE OF COLORADO, WHICH INCLUDES BUT ARE NOT LIMITED TO, SURFACE WATER, GROUND WATER, DRY GULLIES OR STORM SEWERS LEADING TO SURFACE WATER, SHALL BE IMMEDIATELY REPORTED TO THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT (CDPHE) PER 25-8-601, AND THE TOWN OF PARKER. RELEASES OF PETROLEUM PRODUCTS AND CERTAIN HAZARDOUS SUBSTANCES LISTED UNDER THE FEDERAL CLEAN WATER ACT (40 CFR PART 116) MUST BE REPORTED TO THE NATIONAL RESPONSE CENTER AND THE CDPHE. SPILLS THAT POSE AN IMMEDIATE SAFETY HAZARD SHALL BE REPORTED TO 911.
26. THE CLEANING OF CONCRETE TRUCKS AND EQUIPMENT IS RESTRICTED TO THE APPROVED CONCRETE WASHOUT LOCATION ON THE JOB SITE. CONCRETE WASH WATER SHALL NOT BE DISCHARGED TO STATE WATERS OR STORM SEWER SYSTEMS.
27. VEHICLE AND EQUIPMENT DEGREASING IS PROHIBITED ON THE JOB SITE.
28. ALL DEWATERING ON SITE SHALL BE COORDINATED WITH THE TOWN'S INSPECTOR. A STATE PERMIT MAY BE REQUIRED FOR DEWATERING. THE EROSION CONTROL SUPERVISOR IS RESPONSIBLE FOR OBTAINING AND ADHERING TO ALL APPLICABLE PERMITS.
29. HYDRAULIC SEEDING AND/OR HYDRAULIC MULCHING ARE ONLY ALLOWED IN AREAS UNDER TEMPORARY OR PERMANENT IRRIGATION OR FOR THE PURPOSE OF TEMPORARY SOIL STABILIZATION.
30. APPLICABLE CONSTRUCTION BMPs SHALL REMAIN IN PLACE AND PROPERLY MAINTAINED UNTIL ALL LANDSCAPING HAS BEEN INSTALLED AND THE DESIRABLE VEGETATION HAS REACHED A POINT IN WHICH EROSION AND SEDIMENTATION IS NO LONGER A CONCERN AS DETERMINED BY THE TOWN'S INSPECTOR.
31. GRADING SECURITY RELEASE REQUIREMENTS:
 - 1) DEVELOPABLE PROPERTY: IN ORDER FOR THE GRADING SECURITY TO BE RELEASED, THE SITE MUST MEET ITEMS A-H OR ITEM I (BELOW).
 - A. ALL SOIL-DISTURBING ACTIVITIES ASSOCIATED WITH THE GRADING PERMIT HAVE PERMANENTLY CEASED.
 - B. UNIFORM PERENNIAL VEGETATION COVER HAS BEEN ESTABLISHED WITH AN INDIVIDUAL PLANT DENSITY OF AT LEAST SEVENTY PERCENT (70%) OF PRE-DISTURBANCE LEVELS.
 - C. ALL CBMPs HAVE BEEN PROPERLY REMOVED FROM THE SITE.
 - D. IF ANY EROSION IS PRESENT, IT IS INSIGNIFICANT AND IS NOT LEAVING THE SITE AND/OR LEADING INTO ANY ON-SITE DRAINAGE INFRASTRUCTURE THAT MAY CONVEY SURFACE WATER OFF SITE.
 - E. WEEDS REPRESENT NO MORE THAN FIFTY PERCENT (50%) OF THE TOTAL VEGETATION ON THE SITE.
 - F. NO WEEDS ARE PRESENT FROM LIST A OF THE COLORADO NOXIOUS WEED LIST, AS AMENDED.
 - G. THE SITE IS PREDOMINANTLY FREE OF WEEDS FROM LIST B OF THE COLORADO NOXIOUS WEED LIST, AS AMENDED.
 - H. WEEDS ARE EVENLY DISTRIBUTED THROUGHOUT THE SITE WITH NO LARGE CONCENTRATIONS PRESENT.
 - I. A NEW GRADING PERMIT AND REPLACEMENT SECURITY HAS BEEN SUBMITTED AND APPROVED FOR THE APPLICABLE SITE OR ASSIGNMENT AS PROVIDED BY SECTION 11.10.150 OF THE TOWN OF PARKER MUNICIPAL CODE. IT IS THE PROPERTY OWNER'S OBLIGATION AT THE TIME OF CLOSING TO ENSURE THAT THE NEW SITE OWNER HAS PROVIDED THE TOWN WITH A REPLACEMENT SECURITY.

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- 2) NONDEVELOPABLE PROPERTY: IN ORDER FOR THE GRADING SECURITY TO BE RELEASED, THE SITE MUST MEET ITEMS A-H AND J, OR ITEMS I AND J (BELOW).
 - A. ALL SOIL-DISTURBING ACTIVITIES ASSOCIATED WITH THE GRADING PERMIT HAVE PERMANENTLY CEASED.
 - B. ALL CBMPs HAVE BEEN PROPERLY REMOVED FROM THE SITE.
 - C. EROSION IS NEGLIGIBLE, IF EVEN PRESENT.
 - D. THE VEGETATION REPRESENTS A PERENNIAL STAND OF A DENSE, UNIFORM SURFACE OF GRASS WITH NO AREA GREATER THAN ONE (1) SQUARE FOOT THAT IS BARREN OF DESIRABLE VEGETATION. INFREQUENT, WIDELY SCATTERED AREAS WHERE NATIVE VEGETATION HAS NOT YET TAKEN HOLD MAY QUALIFY FOR ACCEPTANCE AT THE DISCRETION OF THE TOWN.
 - E. WEEDS REPRESENT NO MORE THAN TEN PERCENT (10%) OF THE TOTAL VEGETATION ON SITE.
 - F. NO WEEDS ARE PRESENT FROM LIST A OF THE COLORADO NOXIOUS WEED LIST, AS AMENDED.
 - G. THE SITE IS PREDOMINANTLY FREE OF WEEDS FROM LIST B OF THE COLORADO NOXIOUS WEED LIST, AS AMENDED.
 - H. WEEDS ARE EVENLY DISTRIBUTED THROUGHOUT THE SITE WITH NO LARGE CONCENTRATIONS PRESENT.
 - I. A NEW GRADING PERMIT AND REPLACEMENT SECURITY HAS BEEN SUBMITTED AND APPROVED FOR THE APPLICABLE SITE OR THE GRADING PERMIT HAS BEEN ASSIGNED AS PROVIDED BY SECTION 11.10.150 OF THE TOWN OF PARKER MUNICIPAL CODE. IT IS THE PROPERTY OWNER'S OBLIGATION, AT THE TIME OF CLOSING ON THE SALE OF A SITE THAT IS SUBJECT TO A GRADING PERMIT, TO ENSURE THAT THE NEW PROPERTY OWNER HAS PROVIDED THE TOWN WITH A REPLACEMENT SECURITY.
 - J. ALL KNOWN DRAINAGE ISSUES ASSOCIATED WITH THE PROJECT HAVE BEEN MITIGATED AND A SUFFICIENT AMOUNT OF TIME HAS PASSED TO ENSURE THAT SUCH ISSUES HAVE BEEN CORRECTED. THIS REQUIREMENT DOES NOT INCLUDE THOSE DRAINAGE ISSUES ORIGINATING ON RESIDENTIAL LOTS.
 - (D) NOXIOUS WEEDS MUST BE CONTROLLED AS PROVIDED UNDER STATE LAW AND SECTION 6.01.260 OF THE TOWN OF PARKER MUNICIPAL CODE. FAILURE TO CONTROL NOXIOUS WEEDS ON THE SITE MAY CONSTITUTE A NUISANCE, SUBJECT TO THE PENALTIES CONTAINED IN THE CODE.
- DEFINITIONS:**
- DEVELOPABLE PROPERTY** MEANS ANY LAND THAT HAS BEEN GRADED AND IS PART OF A PLATTED LOT OR PLATTED TRACT OF RECORD, THAT WAS PLATTED FOR FUTURE DEVELOPMENT, INCLUDING RESIDENTIAL HOME CONSTRUCTION OR PUBLIC IMPROVEMENTS.
- NONDEVELOPABLE PROPERTY** MEANS LAND THAT HAS BEEN GRADED AND WILL NOT BE FURTHER DISTURBED AS PART OF ANY FUTURE DEVELOPMENT. EXAMPLES INCLUDE, BUT ARE NOT LIMITED TO: PARKS, OPEN SPACE, HOMEOWNER ASSOCIATION OR BUSINESS ASSOCIATION PLATTED TRACTS, DETENTION PONDS AND DRAINAGEWAYS.
32. FAILURE TO COMPLY WITH ANY OF THE REQUIREMENTS DESCRIBED IN THIS SECTION MAY RESULT IN THE ISSUANCE OF: A NOTICE OF INTENT TO ISSUE A STOP WORK ORDER, A STOP WORK ORDER AND/OR THE REMEDIES/PENALTIES DESCRIBED IN CHAPTER 11.10 OF THE TOWN OF PARKER MUNICIPAL CODE.
 33. ANY PERSON CONVICTED OF VIOLATING ANY PROVISION OF THE TOWN OF PARKER, GRADING & EARTH MOVEMENT SECTION OF THE MUNICIPAL CODE SHALL BE GUILTY OF A MISDEMEANOR AND, UPON CONVICTION, BE PUNISHED BY A FINE OF NOT MORE THAN FOUR HUNDRED NINETY NINE DOLLARS (\$499.00) FOR EACH SEPARATE OFFENSE. EACH DAY A VIOLATION CONTINUES SHALL CONSTITUTE A SEPARATE OFFENSE. THE TOWN ALSO MAY SEEK IN MUNICIPAL COURT AN INJUNCTION, ABATEMENT, RESTITUTION OR ANY OTHER REMEDY TO PREVENT, ENJOIN, ABATE OR REMOVE THE VIOLATION. A PERSON CONVICTED OF VIOLATING CHAPTER 11.10 OF THE TOWN OF PARKER MUNICIPAL CODE SHALL BE LIABLE FOR THE ACTUAL COST OF REHABILITATING THE PROPERTY. THE COSTS MAY BE RECOVERED AS RESTITUTION IN MUNICIPAL COURT PROCEEDINGS OR IN A SEPARATE CIVIL ACTION.
 34. THE TOWN OF PARKER RESERVES THE RIGHT TO ALLOW MODIFICATIONS AND SUBSTITUTIONS TO THE CBMP NOTES AND DETAILS WHEN SUCH MODIFICATIONS AND SUBSTITUTIONS OFFER THE SAME LEVEL OF PROTECTION AS THE STANDARD REQUIREMENTS BASED UPON THE SPECIFIC SITUATION, AS DETERMINED BY TOWN STAFF. DUE TO THE INSIGNIFICANCE AND REGULARITY OF SUCH MODIFICATIONS AND SUBSTITUTIONS, THE APPROVAL OF SUCH VARIATIONS MAY NOT BE DOCUMENTED BY TOWN STAFF.

NO CHANGES ARE TO BE MADE TO THIS DRAWING WITHOUT WRITTEN PERMISSION OF THE TOWN OF PARKER.





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Oct. 2013

GEN NOTES



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GEN NOTES



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GEN NOTES



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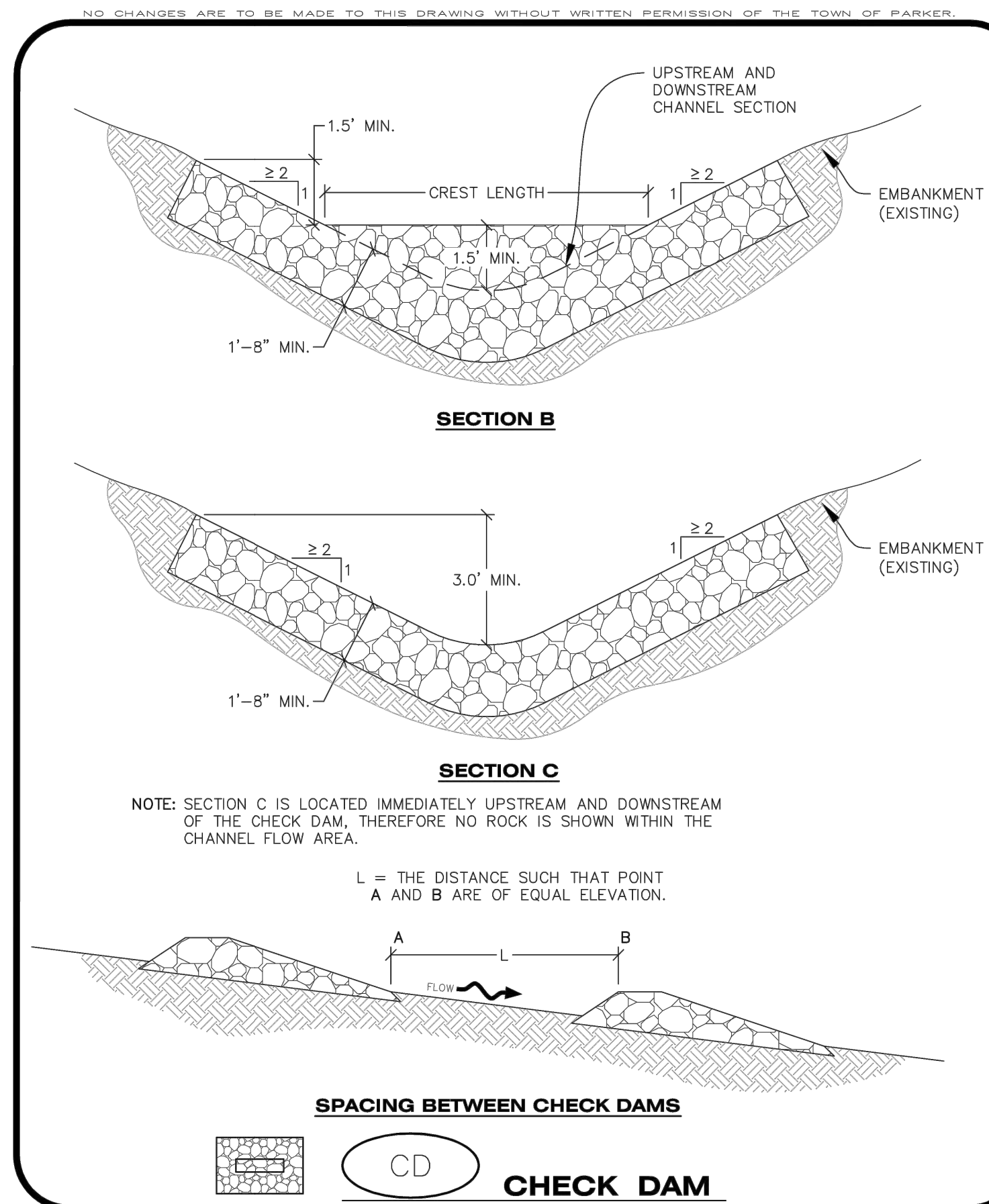
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**NEW HORIZON ACADEMY -
DOUGLAS 234 FILING, NO. 6**
PARKER, CO

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SEH Project	NHOAC 156217	
Checked By	DBH	
Drawn By	AMP	
Project Status		
TOWN REVIEW	Issue Date	8/26/2020
TOWN REVIEW	1/22/2021	
TOWN REVIEW	3/22/2021	
Revision Issue		
Rev. #	Description	Date
1	TOWN COMMENTS	1/22/21
2	TOWN COMMENTS	3/22/21

CBMP DETAILS

C3.2

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Town of Parker COLORADO

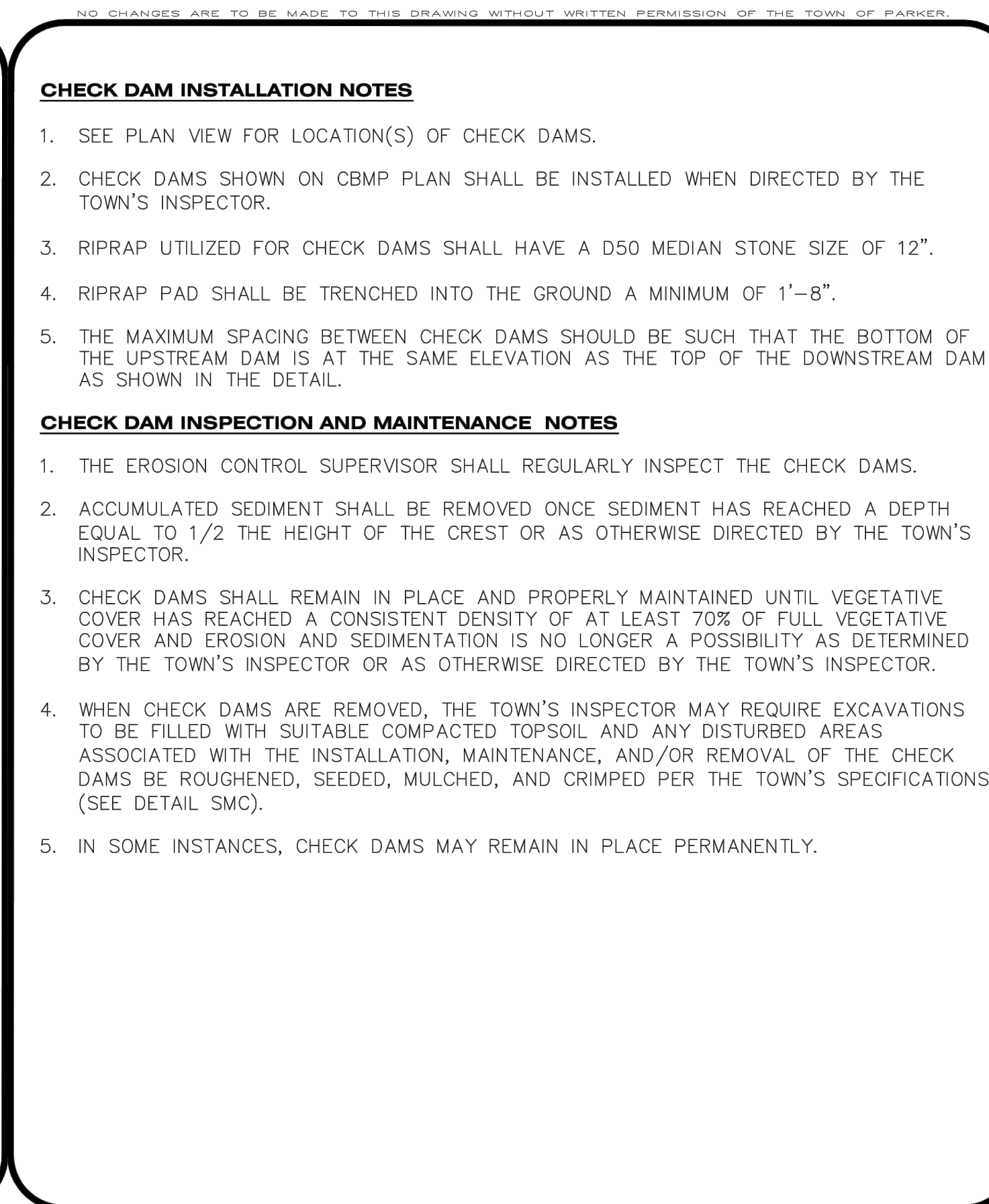
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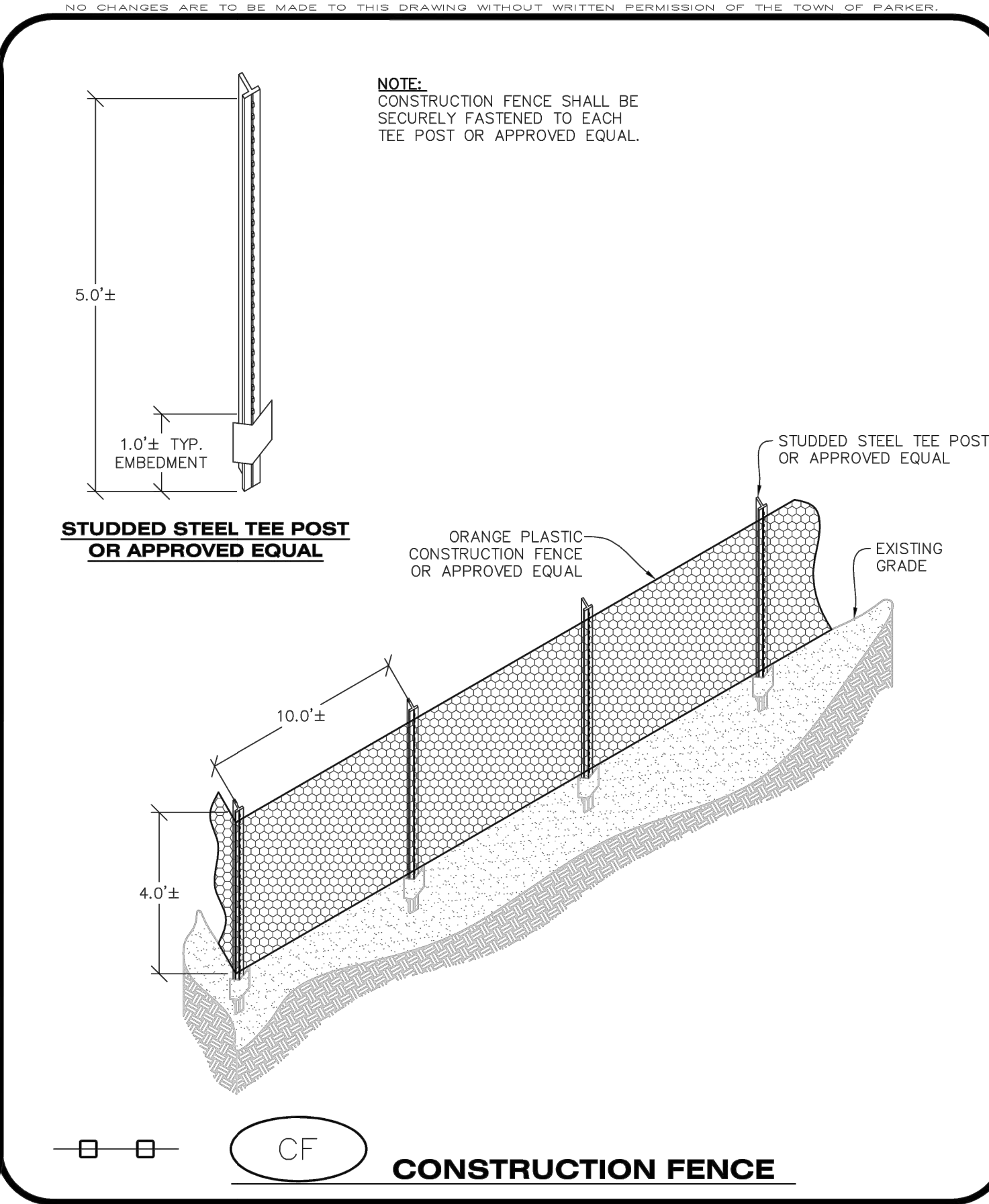
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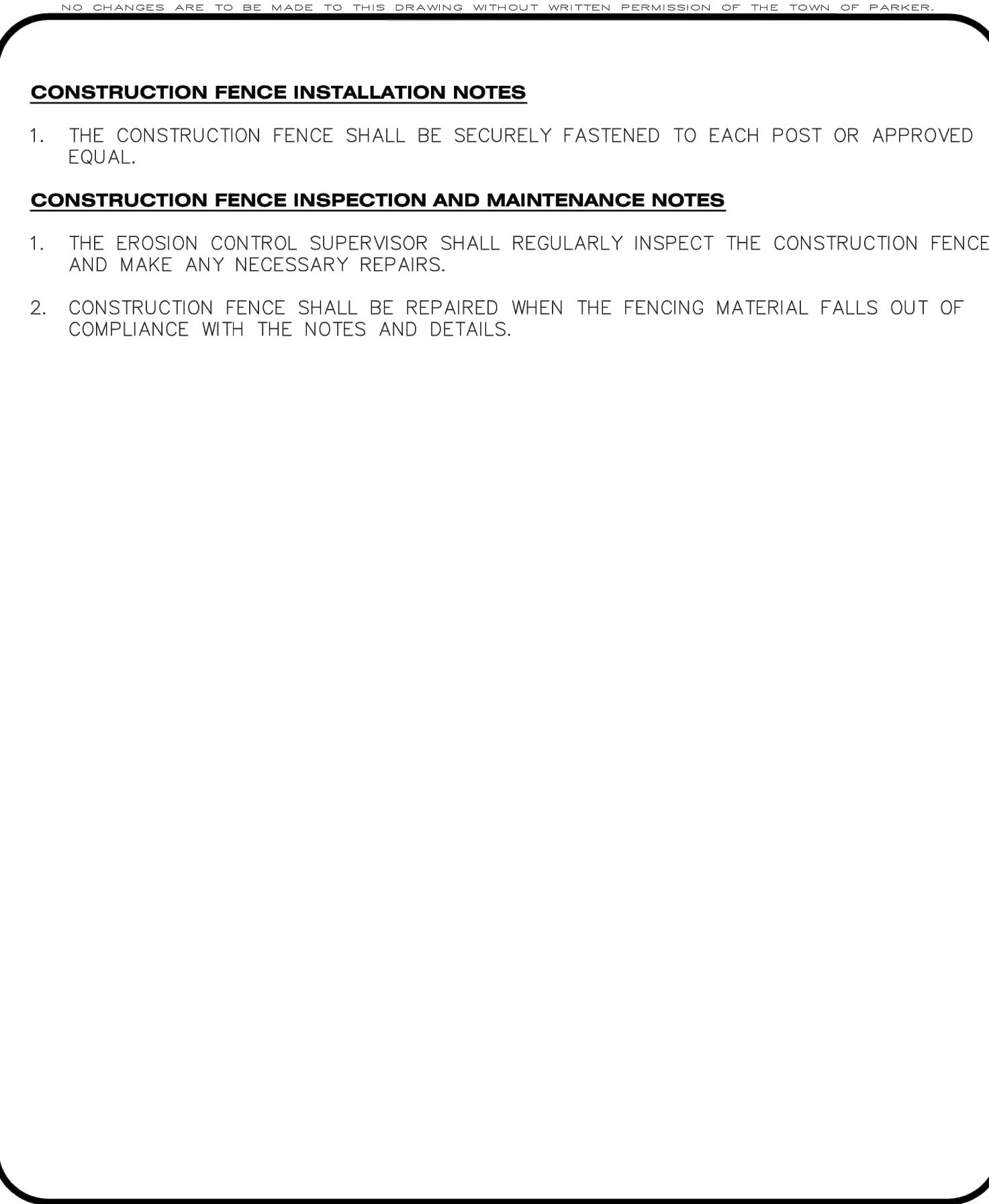
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CF

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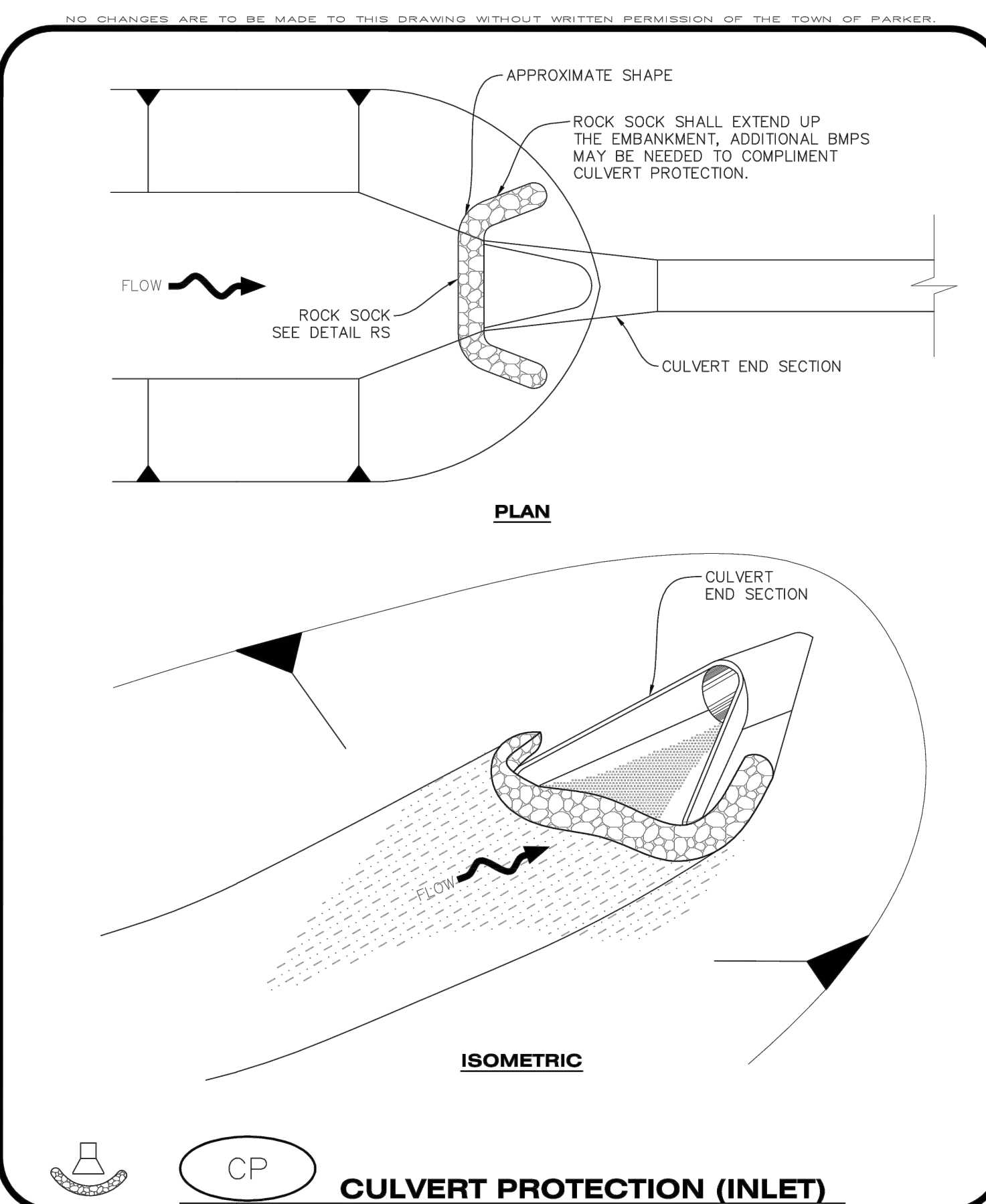
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CF

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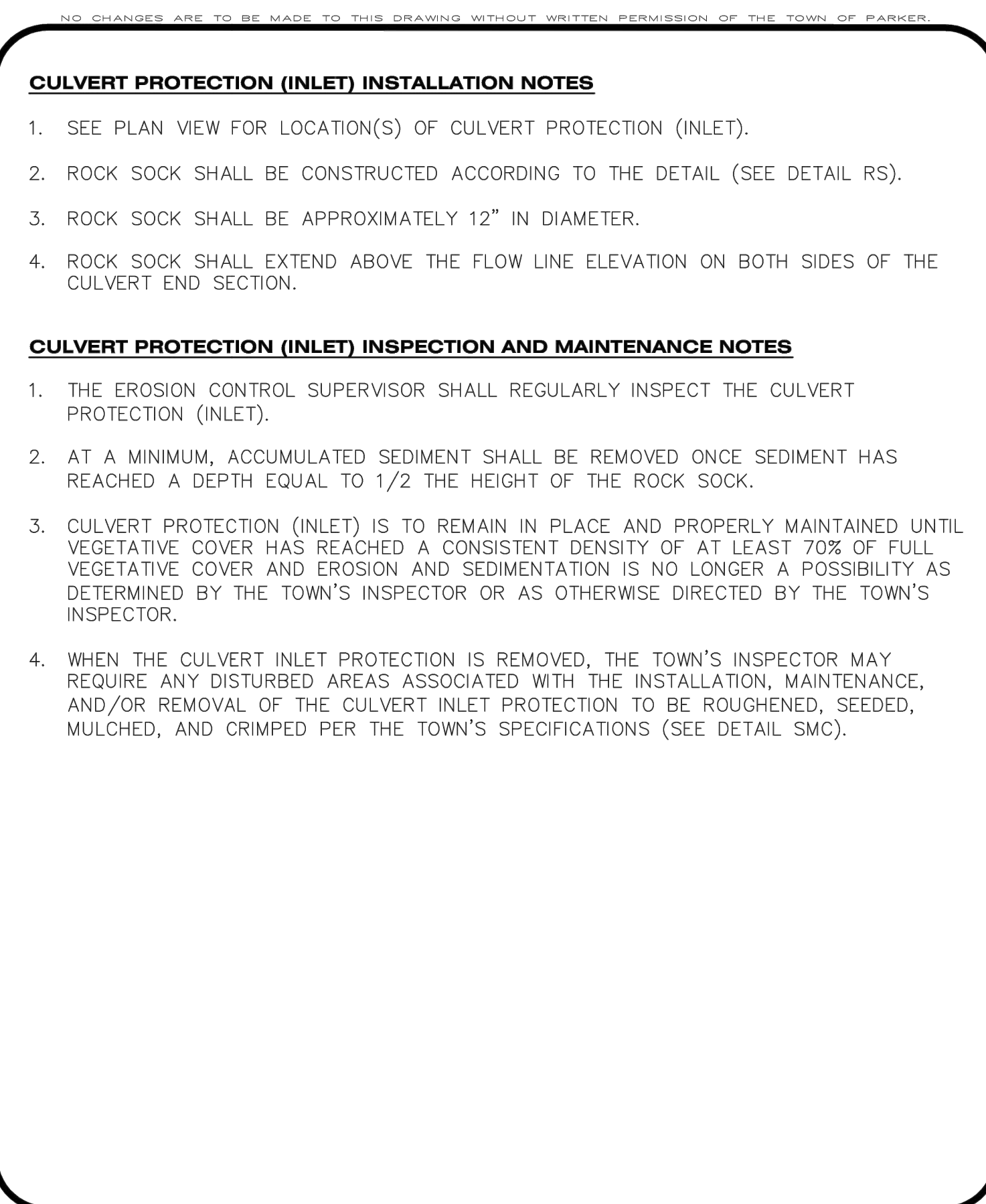
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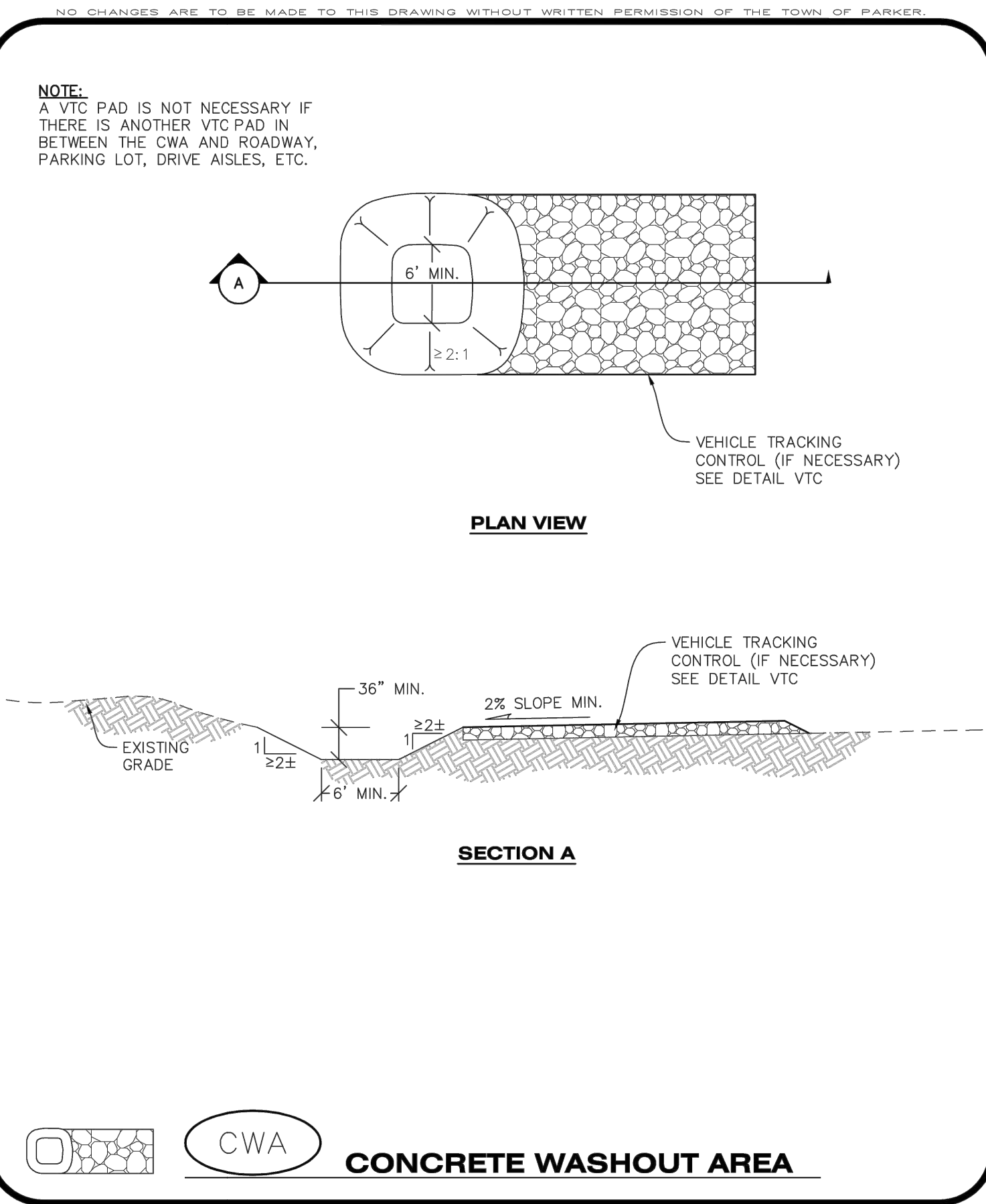
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CP

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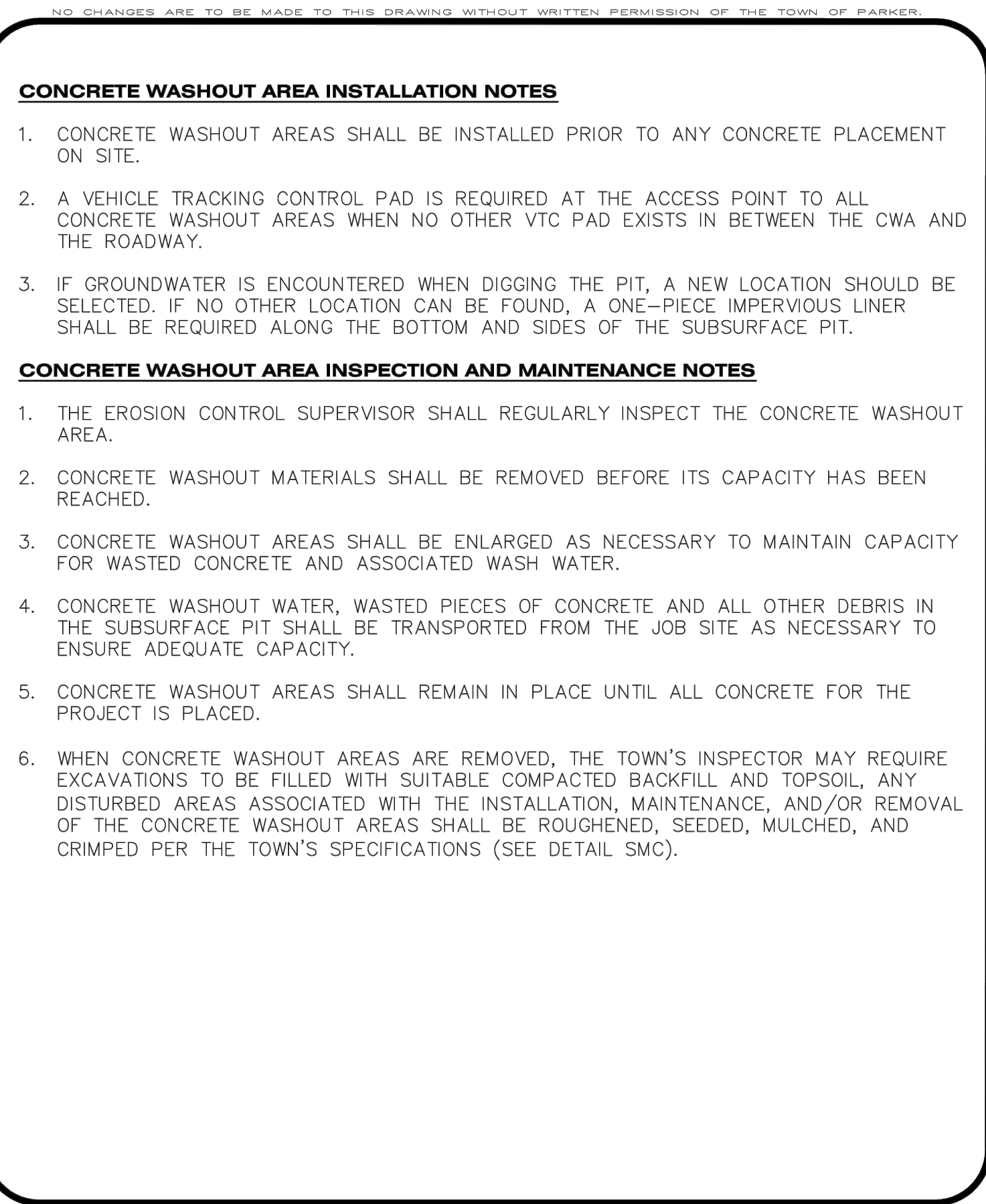
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NHOAC 156217
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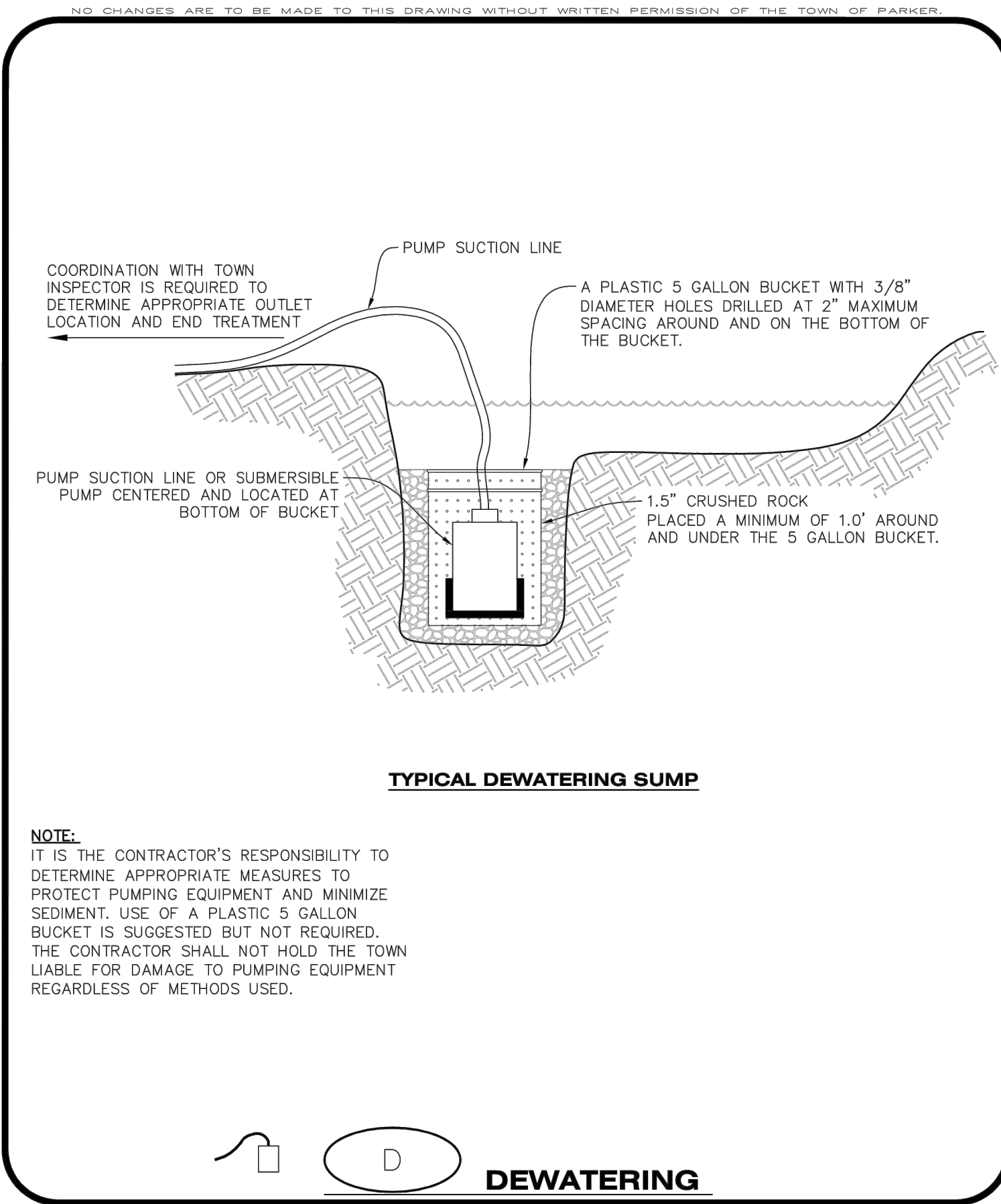
Project Status
TOWN REVIEW
TOWN REVIEW
TOWN REVIEW

Issue Date
8/26/2020
1/22/2021
3/22/2021

Revision Issue		
Rev. #	Description	Date
1	TOWN COMMENTS	1/22/21
2	TOWN COMMENTS	3/22/21

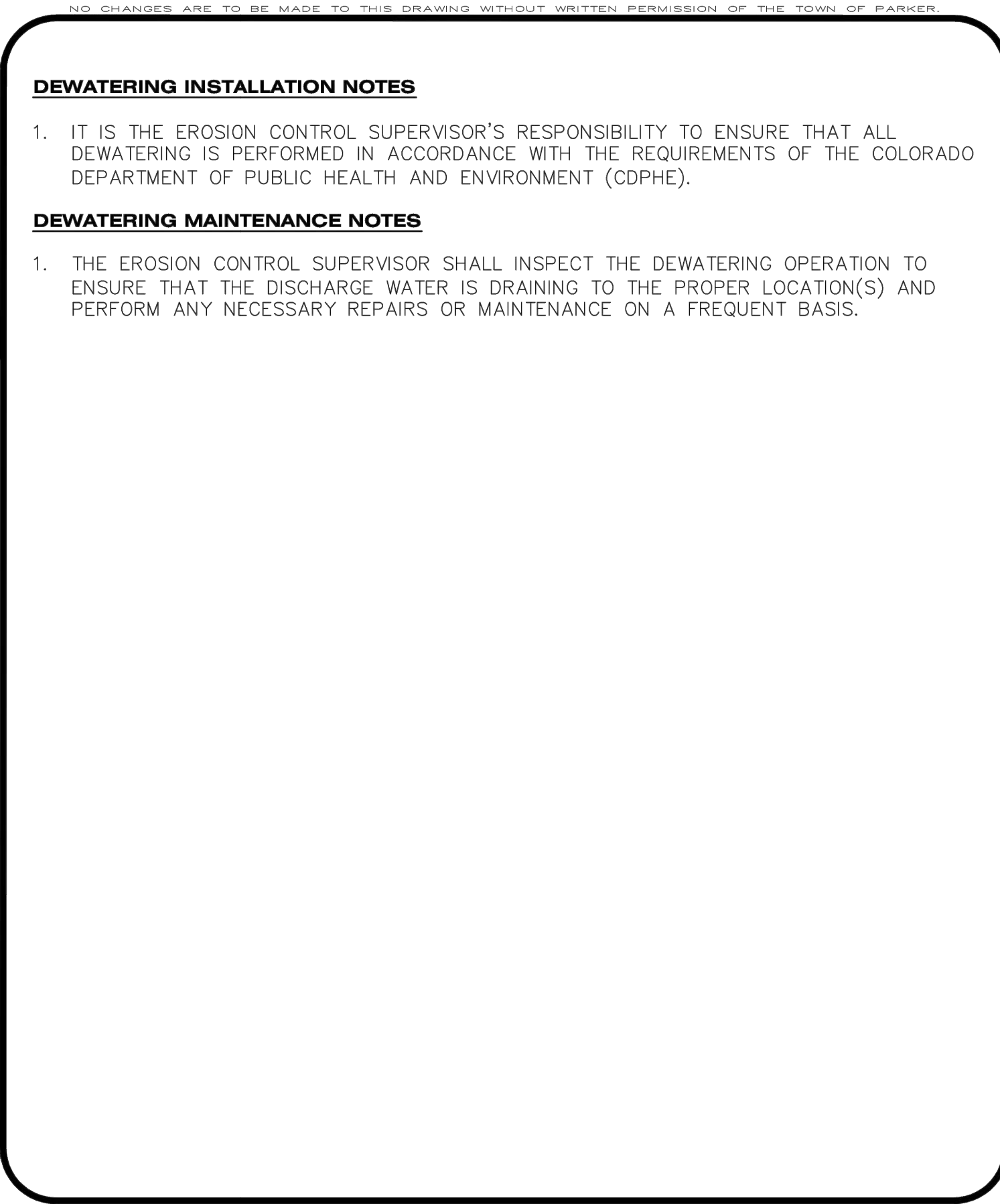
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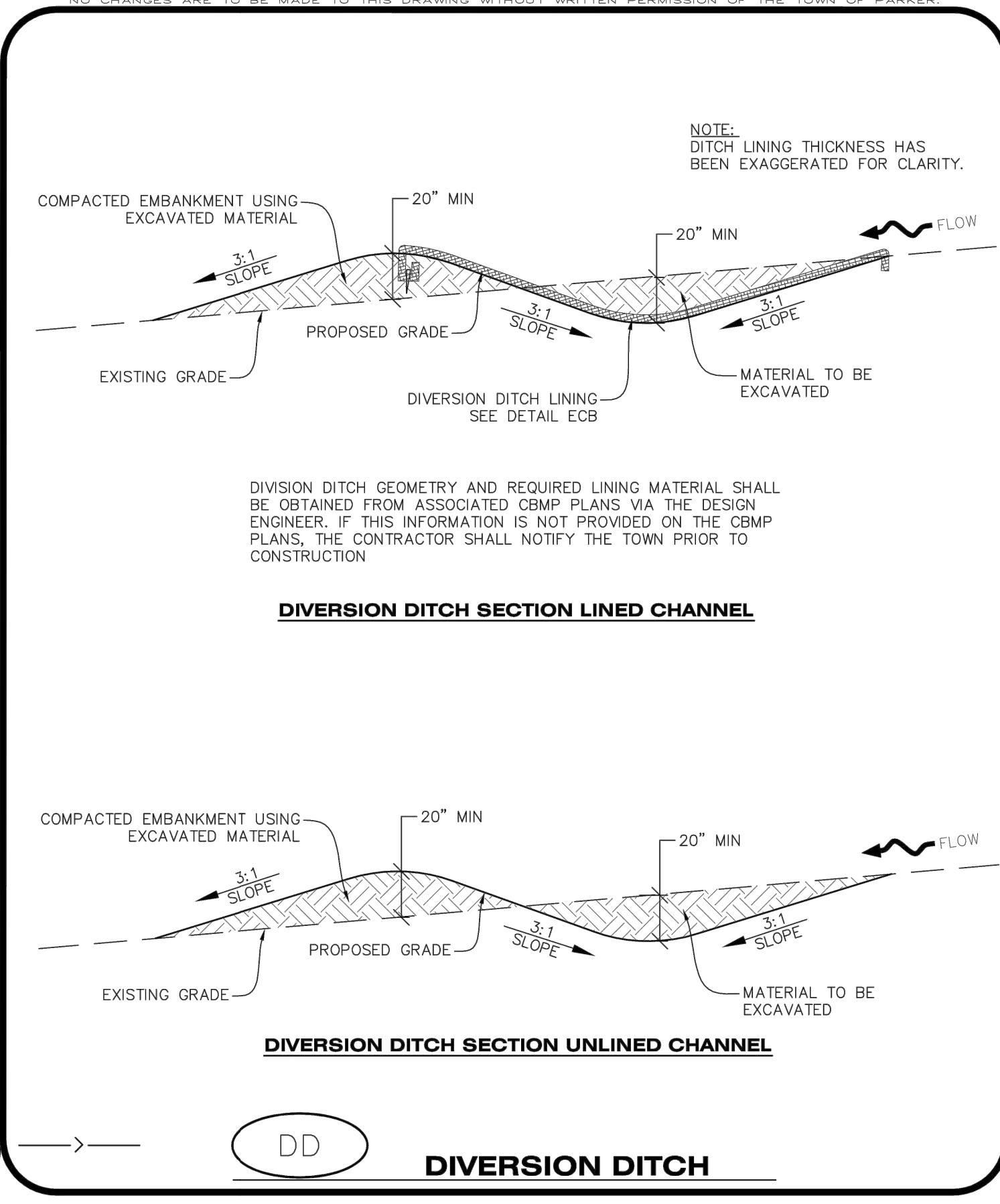
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D
1 OF 2
Oct. 2013



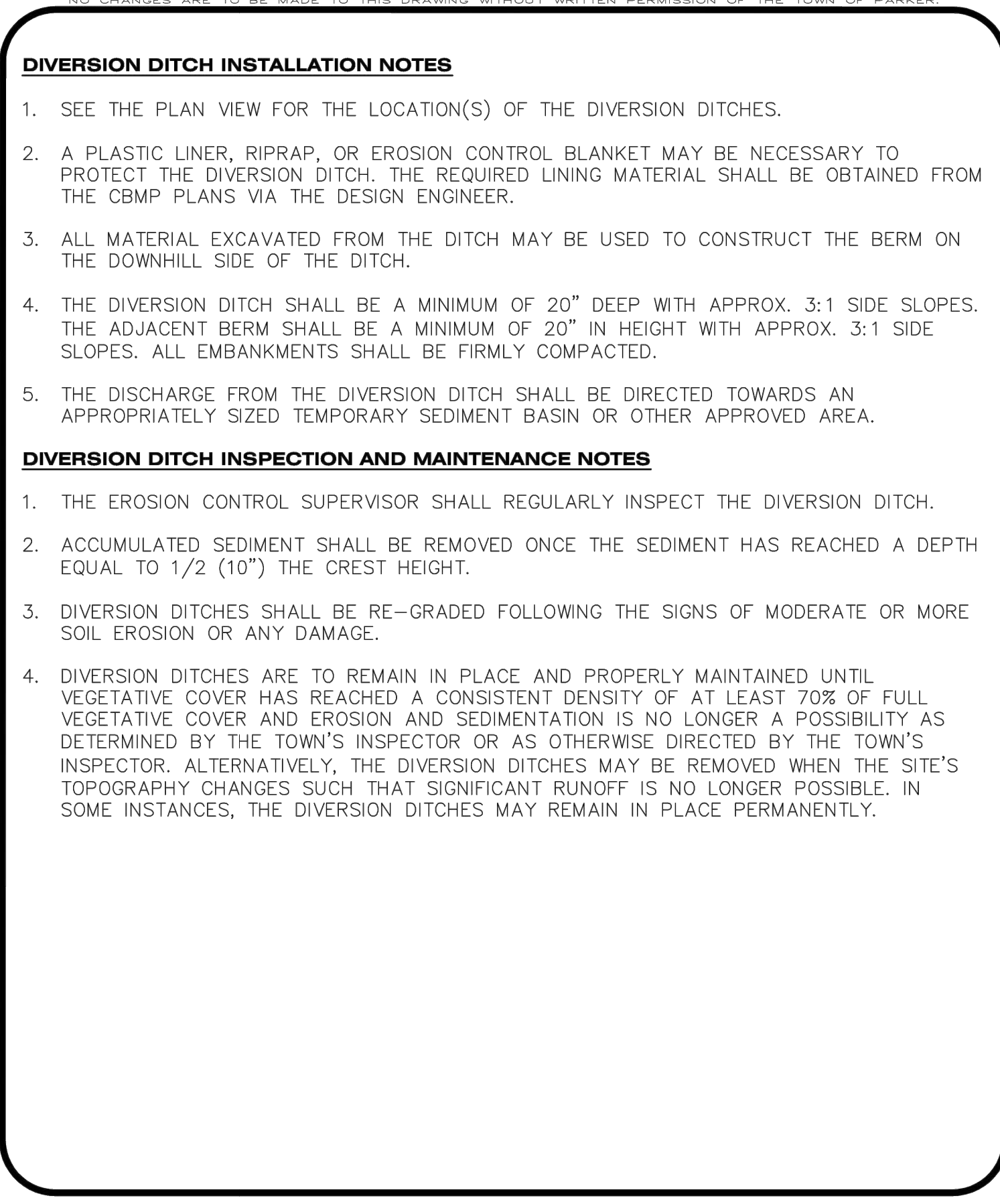
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D
2 OF 2
Oct. 2013



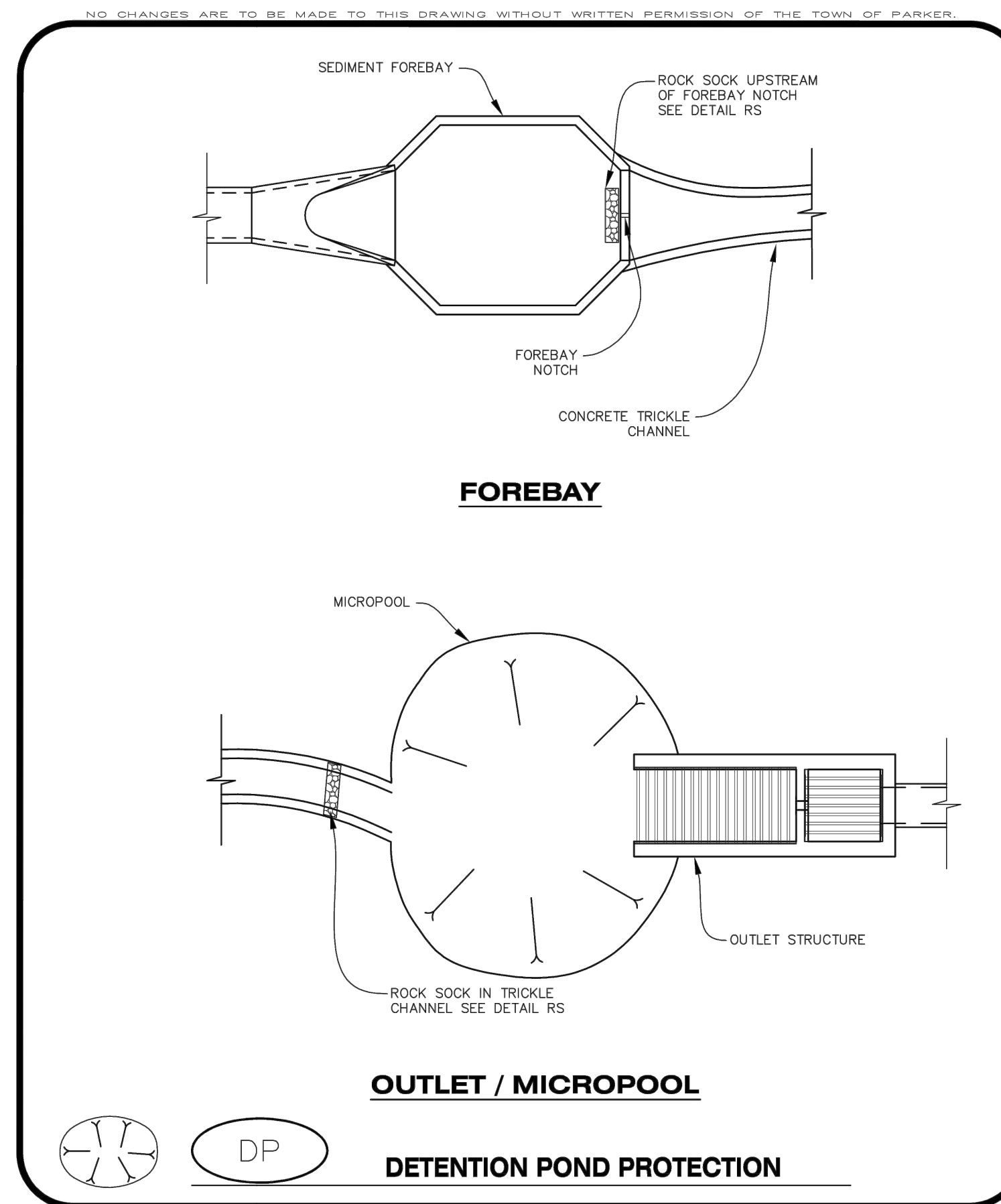
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DD
1 OF 2
Oct. 2013



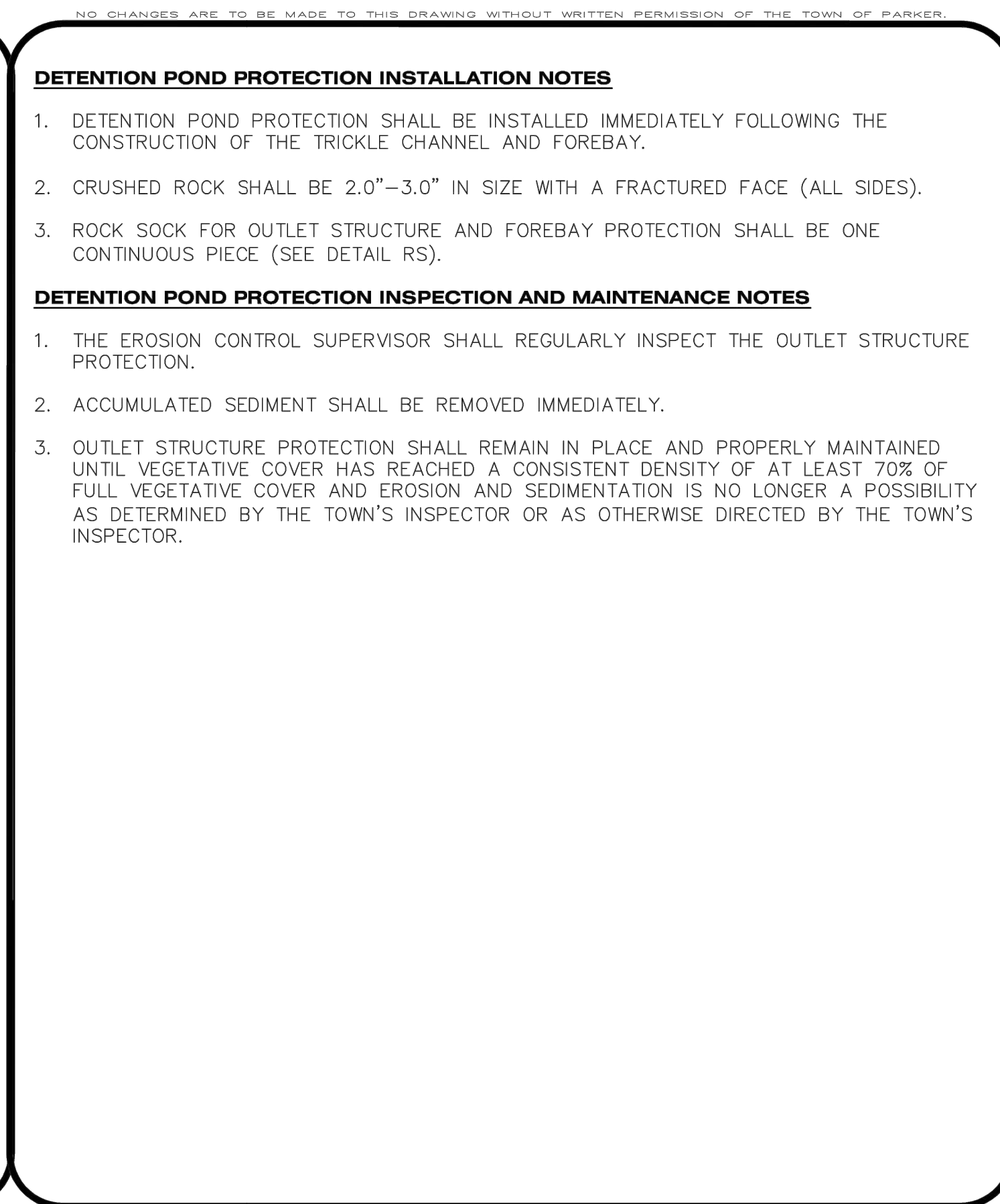
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DD
2 OF 2
Oct. 2013



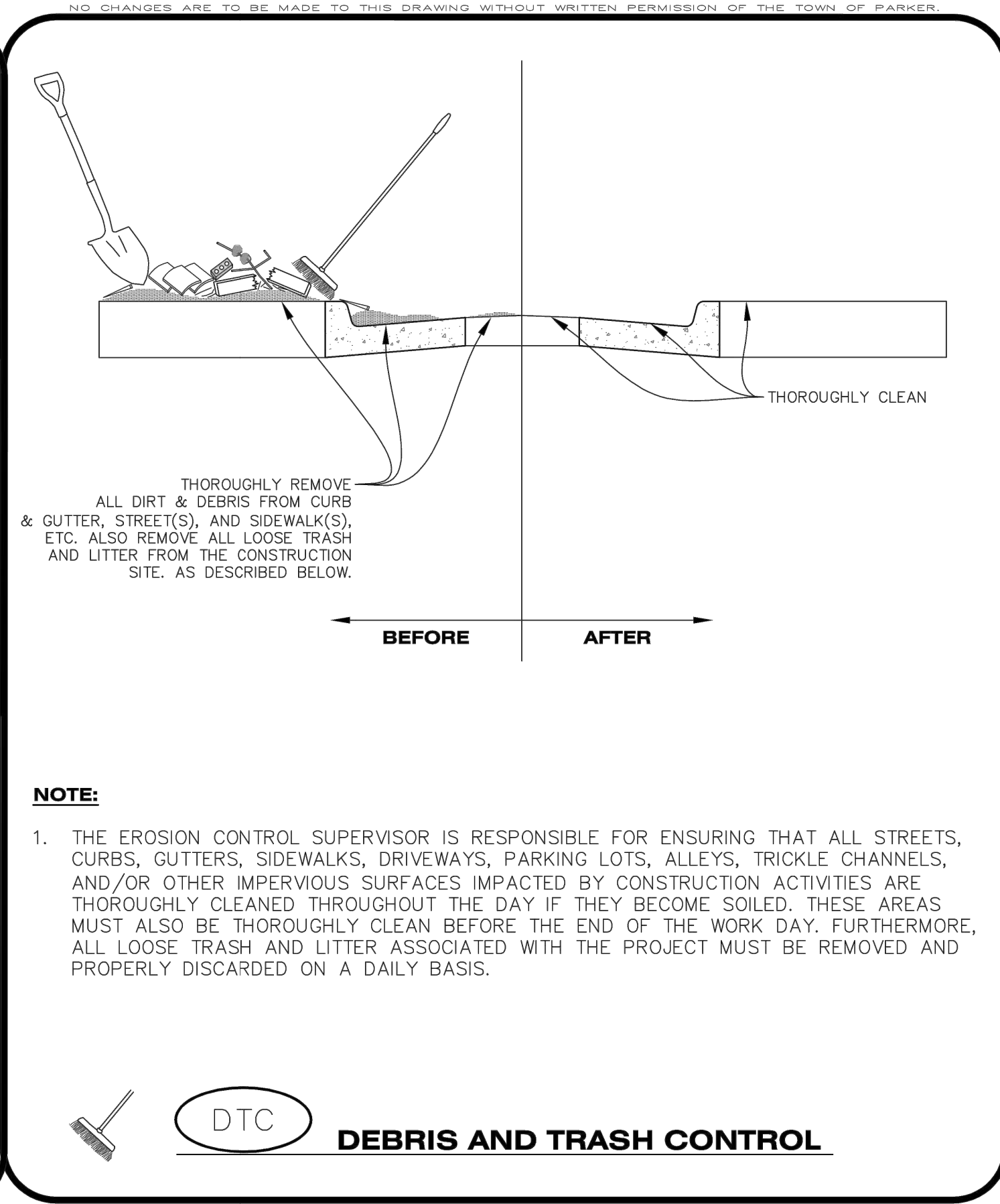
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DP
1 OF 2
Oct. 2013



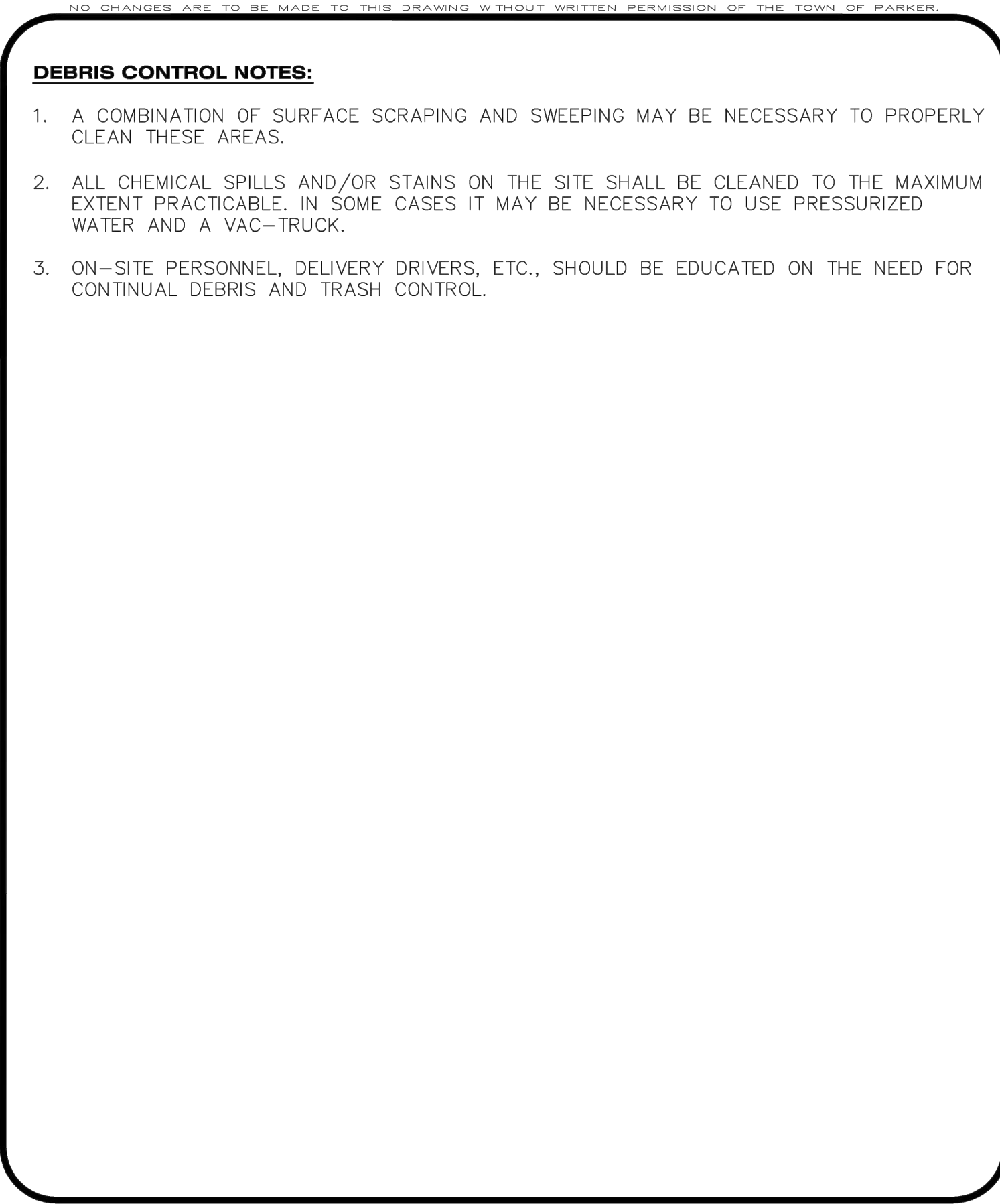
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DP
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Oct. 2013



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DTC
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NEW HORIZON ACADEMY - DOUGLAS 234 FILING, NO. 6 PARKER, CO

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Project Status
TOWN REVIEW
TOWN REVIEW
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Issue Date
8/26/2020
1/22/2021
3/22/2021

Revision Issue

Rev. #
1
2

Description
TOWN COMMENTS
TOWN COMMENTS

Date
1/22/21
3/22/21

CBMP DETAILS

C3.4

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Revision Issue
Rev. # Description Date
1 TOWN COMMENTS 1/22/21
2 TOWN COMMENTS 3/22/21

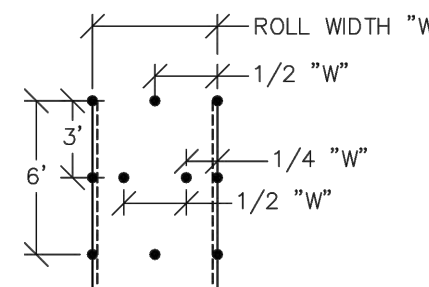
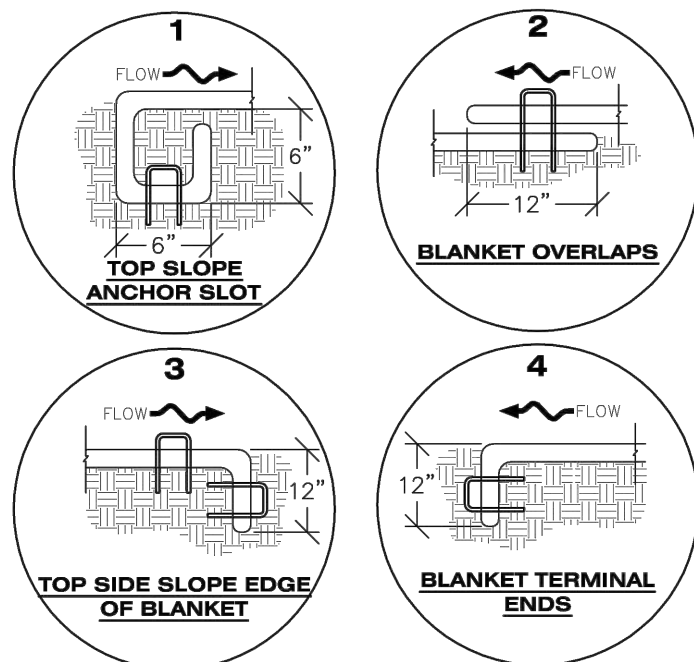
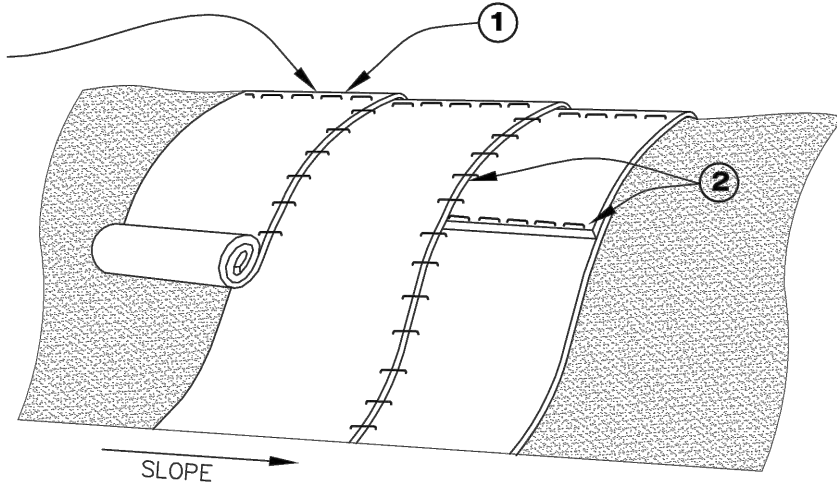
CBMP DETAILS

1

C3.5

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START EROSION BLANKET AT THE TOP OF SLOPE AND EXTEND PAST THE TOE OF SLOPE. BLANKET SHALL BE PLACED PERPENDICULAR TO THE TOP AND BOTTOM OF THE SLOPE. COMPLETE SUBSEQUENT ROWS IN THE SAME MANNER, OVERLAPPING THE BLANKETS A MINIMUM OF 1.0'.



STAPLE PATTERN

NOTE: STAPLES SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATION. IF MANUFACTURER INFO IS NOT AVAILABLE THEN ABOVE STAPLE PATTERN SHALL BE USED. WOODEN STAPLES SHALL NOT BE USED FOR EROSION CONTROL BLANKET ON SLOPES.

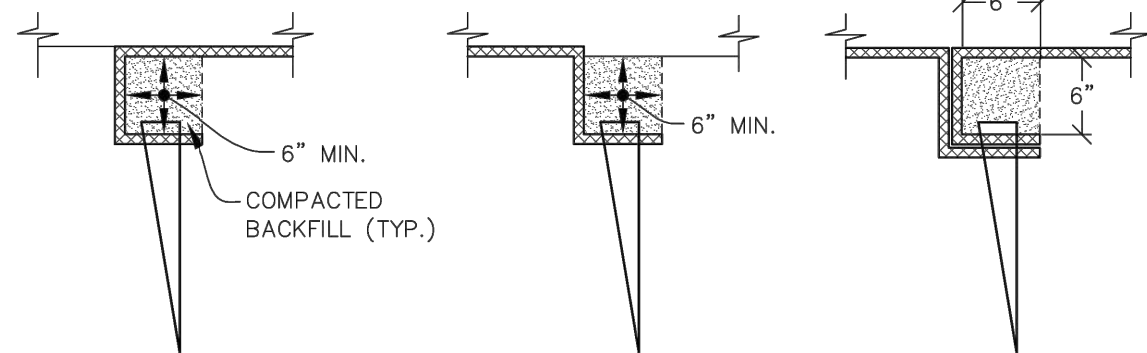
NOTE:
WHEN NECESSARY, ALL SEEDING SHALL BE COMPLETED PRIOR TO THE PLACEMENT OF EROSION CONTROL BLANKETS. PLEASE SEE DETAIL SMC FOR SEEDING, MULCHING, AND CRIMPING REQUIREMENTS.



ECB

EROSION CONTROL BLANKET (SLOPE)

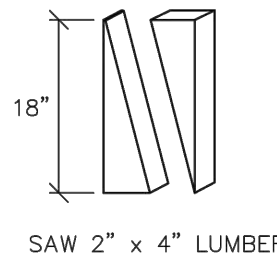
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TOE OF SLOPE
ANCHOR TRENCH

TOP OF SLOPE
ANCHOR TRENCH

JOINT ANCHOR TRENCH
USED TO JOIN BLANKETS
TOGETHER (LONGITUDINAL)



WOOD STAKE DETAIL
ALTERNATIVE WOOD STAKE
PRODUCTS MAY BE USED WITH
APPROVAL FROM THE TOWN.

NOTES:

- WOOD STAKES SHALL BE INSTALLED SUCH THAT ONLY 1" IS EXPOSED ABOVE THE GROUND.
- WHEN NECESSARY, ALL SEEDING SHALL BE COMPLETED PRIOR TO THE PLACEMENT OF EROSION CONTROL BLANKETS. PLEASE SEE DETAIL SMC FOR SEEDING, MULCHING, AND CRIMPING REQUIREMENTS.

STAKING PATTERN

NOTE: STAKES SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATION. IF MANUFACTURER INFO IS NOT AVAILABLE THEN ABOVE STAKING PATTERN SHALL BE USED. STAPLES SHALL NOT BE USED FOR EROSION CONTROL BLANKET IN CHANNELS.



ECB

EROSION CONTROL BLANKET (CHANNEL)

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EROSION CONTROL BLANKET INSTALLATION NOTES

- SEE THE PLAN VIEW FOR THE LOCATION(S) OF THE EROSION CONTROL BLANKETS.
- EROSION CONTROL BLANKETS USED FOR CHANNEL PROTECTION SHALL BE PROPERLY SELECTED BY THE DESIGN ENGINEER BASED ON CURRENT AND FUTURE FLOW RATES WITHIN THE CHANNEL. BASED ON THESE CALCULATIONS, TURF REINFORCEMENT MATTING OR RIPRAP MAY BE NECESSARY IN LIEU OF EROSION CONTROL BLANKETS.
- IMMEDIATELY PRIOR TO BLANKET INSTALLATION, SOIL SURFACE SHALL BE SMOOTH. AND FREE OF ANY GAPS, VOIDS, WEEDS, ROCKS, STICKS, OR OTHER MISCELLANEOUS DEBRIS.
- EROSION CONTROL BLANKET SHALL THEN BE INSTALLED ACCORDING TO THE DETAILED DRAWINGS.
- ANY DAMAGED OR REMAINING STAPLES OR STAKES SHALL BE REMOVED FROM THE SITE.
- ALL EROSION CONTROL BLANKETS FOR SLOPE PROTECTION INSTALLED IN THE TOWN SHALL BE DOUBLE NET, STRAW OR EXCELSIOR.

MANUFACTURER	PRODUCT NAME
NORTH AMERICAN GREEN	S150
APPROVED EQUAL	APPROVED EQUAL

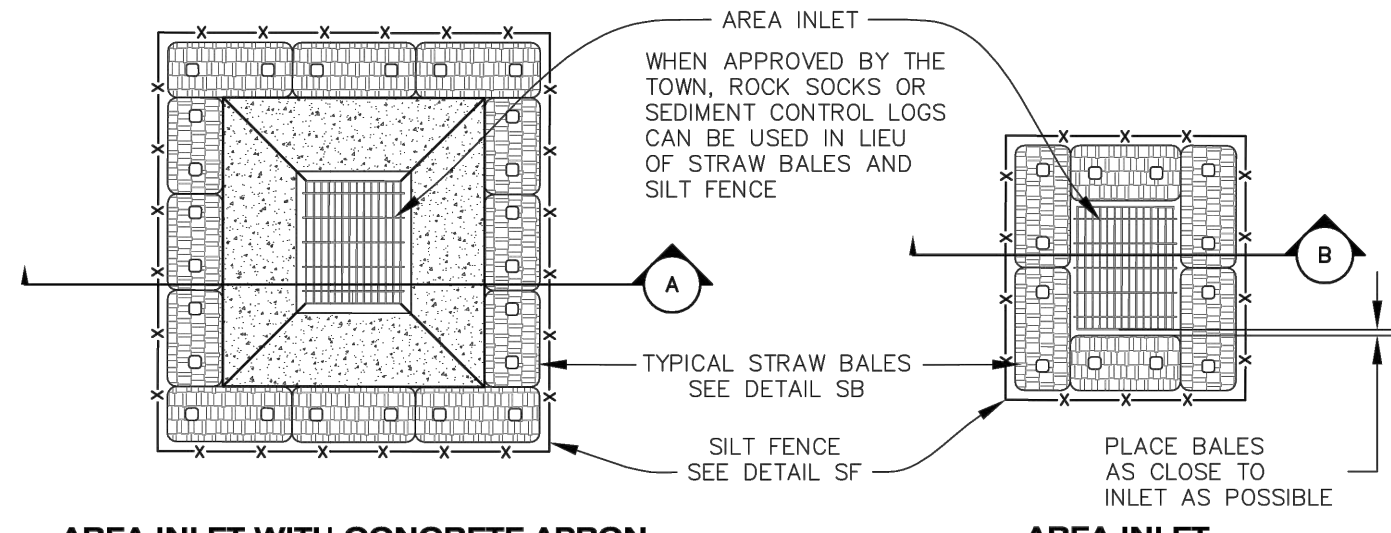
- IN MOST CASES, EROSION CONTROL BLANKETS FOR SLOPE PROTECTION ARE TO REMAIN IN PLACE PERMANENTLY.

EROSION CONTROL BLANKET MAINTENANCE NOTES

- THE EROSION CONTROL SUPERVISOR SHALL REGULARLY INSPECT THE EROSION CONTROL BLANKETS AND MAKE ANY NECESSARY REPAIRS.

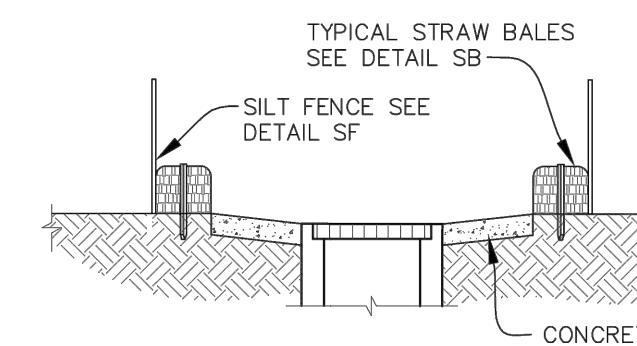
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THIS METHOD OF INLET PROTECTION SHALL NOT BE USED ON INLETS RECEIVING SIGNIFICANT FLOWS, SUCH AS IN CERTAIN SWALES/CHANNELS OR HIGHWAY MEDIANS. INLET PROTECTION FOR AREA INLETS IN PAVEMENT (SEE DETAIL IPAP) SHALL BE USED IN THESE CONDITIONS.

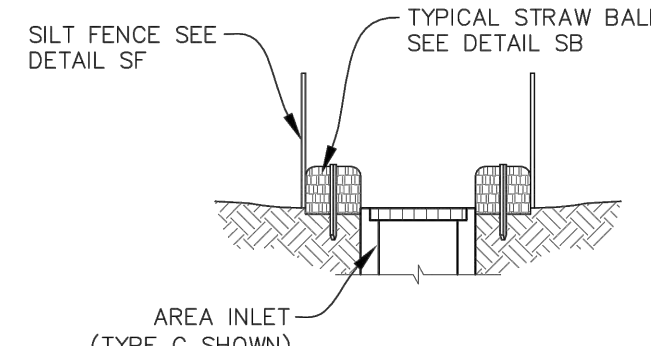


AREA INLET WITH CONCRETE APRON
PLAN VIEW

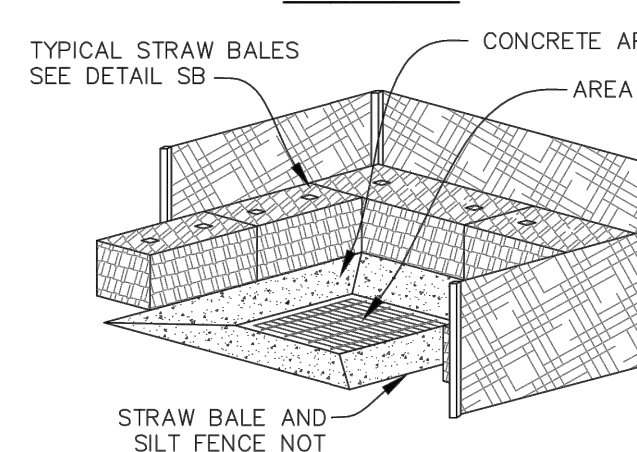
AREA INLET
PLAN VIEW



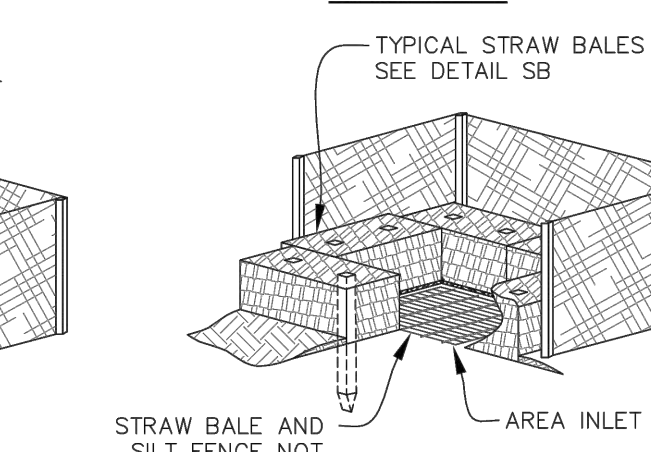
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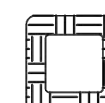
SECTION B



ISOMETRIC



ISOMETRIC



IPAN

INLET PROTECTION FOR AREA INLETS NOT IN PAVEMENT



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CONSTRUCTION BEST MANAGEMENT PRACTICES

ECB

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CONSTRUCTION BEST MANAGEMENT PRACTICES

ECB

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CONSTRUCTION BEST MANAGEMENT PRACTICES

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CONSTRUCTION BEST MANAGEMENT PRACTICES

IPAN

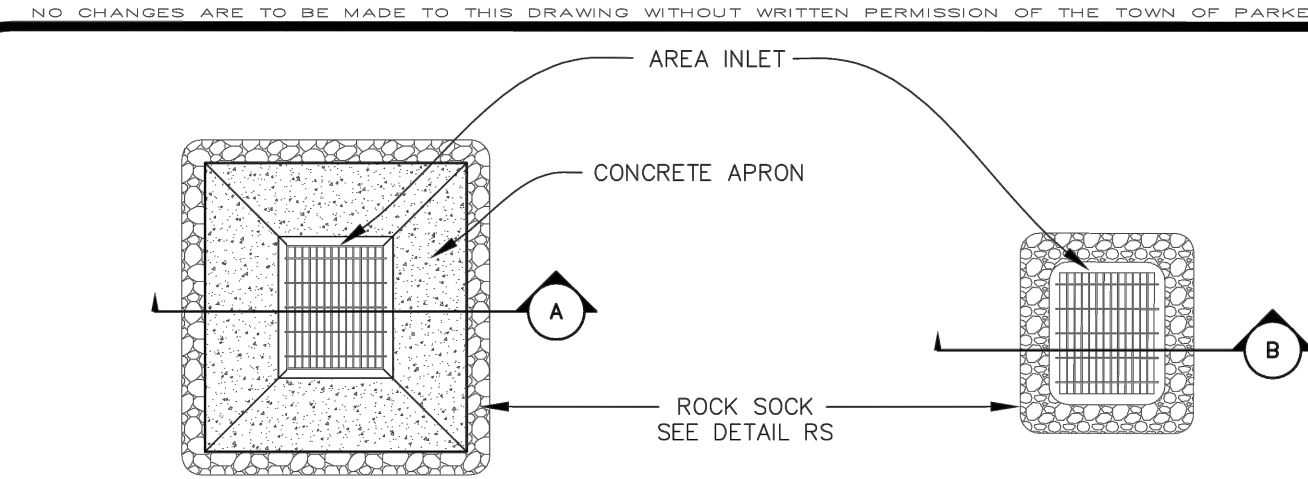
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AREA INLET PROTECTION INSTALLATION NOTES

- SEE PLAN VIEW FOR LOCATION(S) OF AREA INLET PROTECTION.
- THE AREA INLET PROTECTION SHOWN ON CBMP PLANS SHALL BE INSTALLED ON EXISTING INLETS PRIOR TO ANY LAND DISTURBING ACTIVITIES OR IMMEDIATELY AFTER THE INSTALLATION OF NEW INLETS. AN INTERIM STYLE OF INLET PROTECTION MAY BE ALLOWED UNTIL THE INSTALLATION OF THE GUTTER AND/OR PAVEMENT.

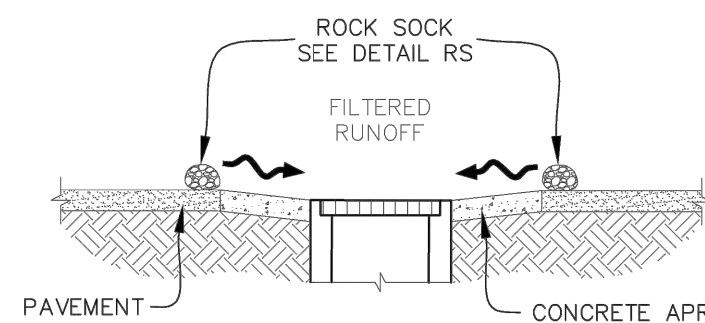
AREA INLET PROTECTION INSPECTION AND MAINTENANCE NOTES

- THE EROSION CONTROL SUPERVISOR SHALL REGULARLY INSPECT THE AREA INLET PROTECTION.
- AREA INLET PROTECTION SHALL REMAIN IN PLACE AND PROPERLY MAINTAINED UNTIL VEGETATIVE COVER HAS REACHED A CONSISTENT DENSITY OF AT LEAST 70% OF FULL VEGETATIVE COVER AND EROSION AND SEDIMENTATION IS NO LONGER A POSSIBILITY AS DETERMINED BY THE TOWN'S INSPECTOR OR AS OTHERWISE DIRECTED BY THE TOWN'S INSPECTOR.
- WHEN THE AREA INLET PROTECTION IS REMOVED, ANY DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION, MAINTENANCE, AND/OR REMOVAL OF THE AREA INLET PROTECTION MAY NEED TO BE ROUGHENED, SEEDED, MULCHED, AND CRIMPED PER THE TOWN'S SPECIFICATIONS (SEE DETAIL SMC).
- ACCUMULATED SEDIMENT SHALL BE REMOVED AS SOON AS POSSIBLE, IMMEDIATELY IN MOST CASES.

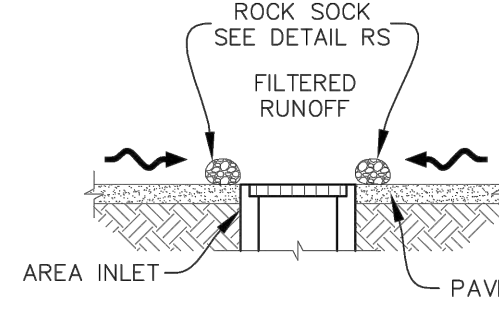


AREA INLET WITH CONCRETE APRON
PLAN VIEW

AREA INLET
PLAN VIEW



SECTION A



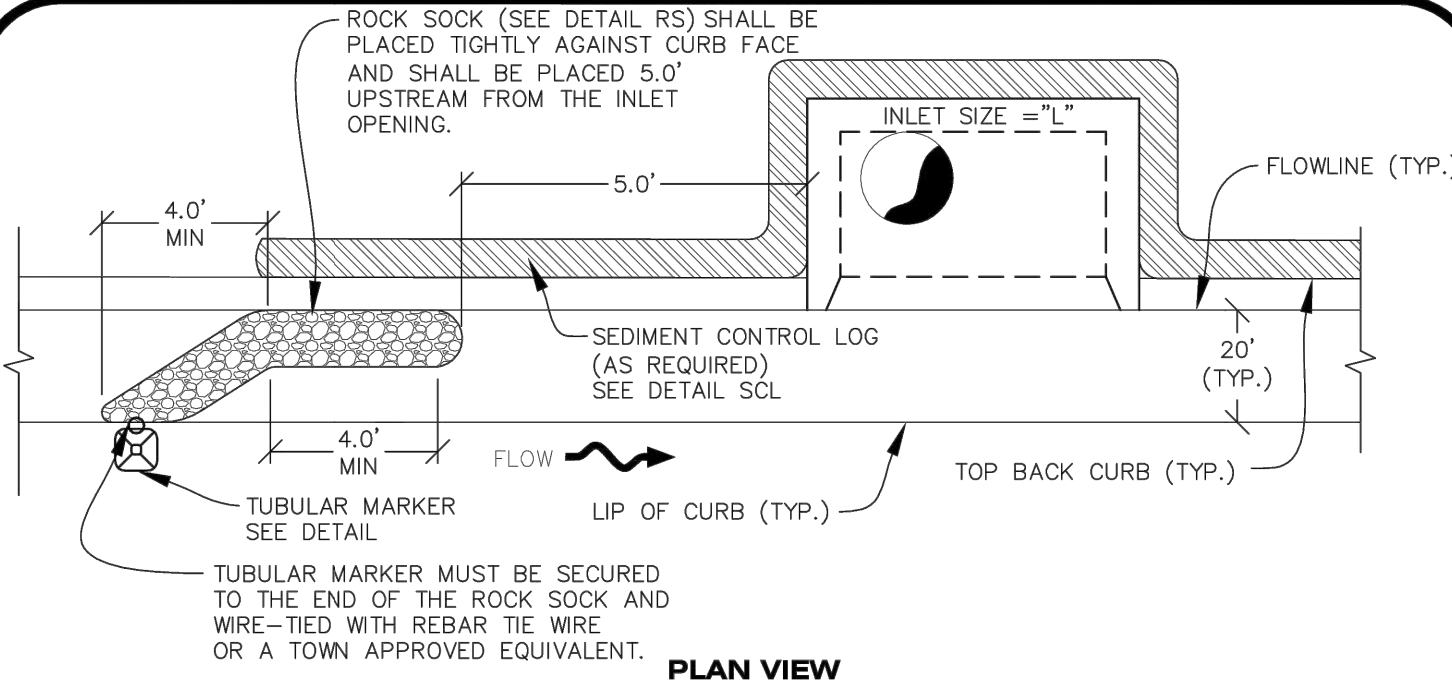
SECTION B



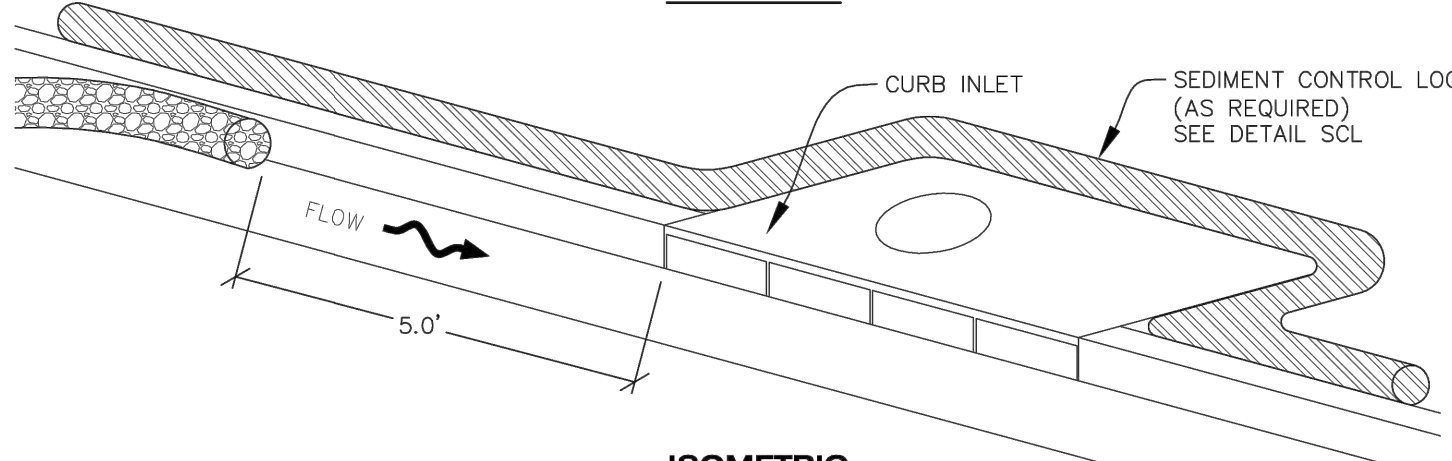
IPAP

INLET PROTECTION FOR AREA INLETS IN PAVEMENT

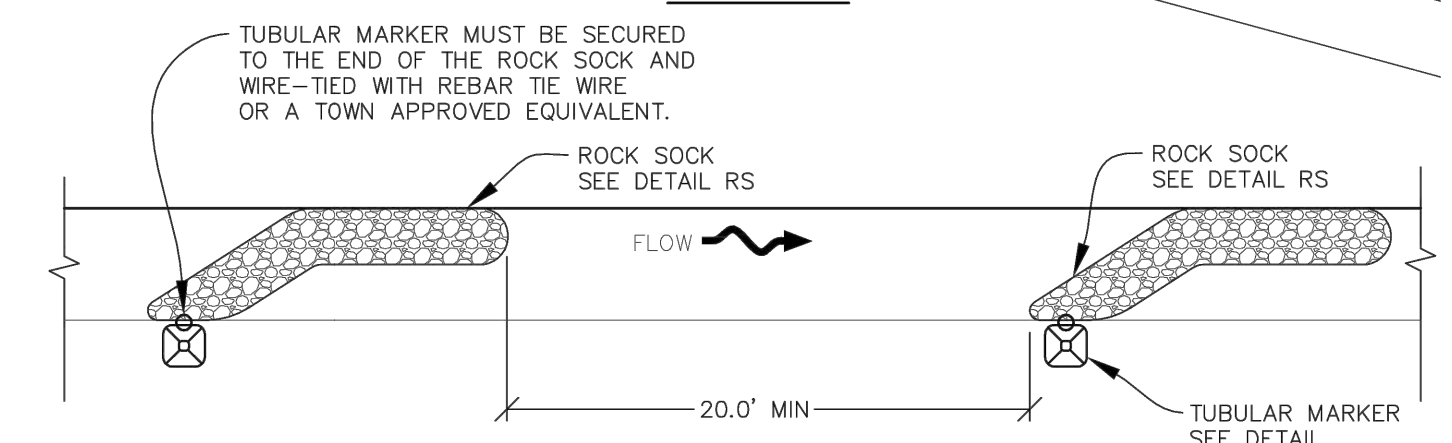
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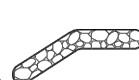
PLAN VIEW



ISOMETRIC



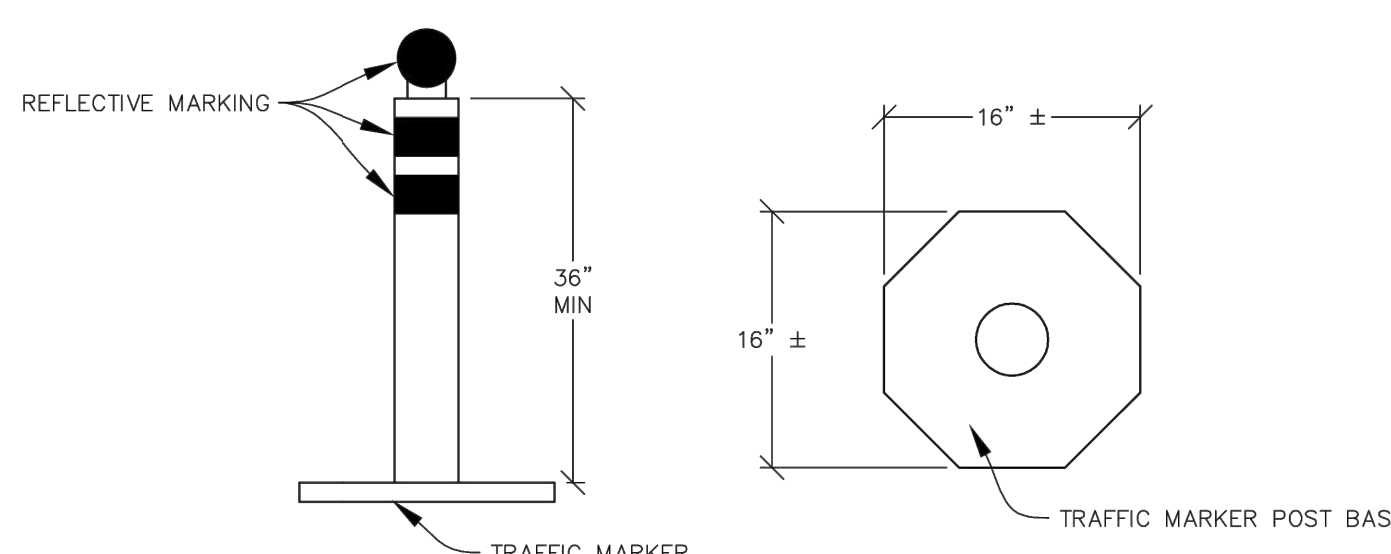
PLAN VIEW FOR MULTIPLE ROCK SOCKS



IPCOG

INLET PROTECTION, CURB ON-GRADE, TYPE R INLET

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ELEVATION

BASE

TUBULAR TRAFFIC MARKER DETAIL



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INLET PROTECTION, CURB ON-GRADE INSTALLATION NOTES

1. SEE CBMP PLAN FOR LOCATION(S) OF ON-GRADE INLET PROTECTION.

2. CRUSHED ROCK SHALL BE 2.0"—3.0" IN SIZE WITH A FRACTURED FACE (ALL SIDES).

3. ROCK SOCK FOR ON-GRADE INLET PROTECTION SHALL BE ONE CONTINUOUS PIECE.

4. ROCK SOCK SHALL BE CONSTRUCTED USING CHICKEN WIRE OR OTHER APPROVED MATERIAL, SIZED TO KEEP ROCK FROM SPILLING OUT.

5. ROCK SOCK SHALL BE PLACED 5.0' UPHILL OF THE INLET OPENING.

6. TUBULAR MARKER SHALL BE A MINIMUM OF 3.0' HIGH WITH REFLECTIVE BANDS AND OCTAGON SHAPED BASES.

7. THE CURB INLET PROTECTION SHOWN ON CBMP PLAN SHALL BE INSTALLED ON EXISTING INLETS PRIOR TO ANY LAND DISTURBING ACTIVITIES OR IMMEDIATELY AFTER THE APPLICABLE INSTALLATION OF THE FIRST LIFT OF ASPHALT ON ROADWAYS DRAINING TO THE INLET.

ON-GRADE INLET PROTECTION INSPECTION AND MAINTENANCE NOTES

1. THE EROSION CONTROL SUPERVISOR SHALL REGULARLY INSPECT THE ON-GRADE INLET PROTECTION.

2. ACCUMULATED SEDIMENT SHALL BE REMOVED AS SOON AS POSSIBLE, IMMEDIATELY IN MOST CASES.

3. ROCK SOCKS SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED OR DAMAGED.

4. ON-GRADE INLET PROTECTION SHALL REMAIN IN PLACE AND PROPERLY MAINTAINED UNTIL VEGETATIVE COVER HAS REACHED A CONSISTENT DENSITY OF AT LEAST 70% OF FULL VEGETATIVE COVER AND EROSION AND SEDIMENTATION IS NO LONGER A POSSIBILITY AS DETERMINED BY THE TOWN'S INSPECTOR OR AS OTHERWISE DIRECTED BY THE TOWN'S INSPECTOR.

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CURB INLET PROTECTION INSTALLATION NOTES

1. SEE CBMP PLAN FOR LOCATION(S) OF CURB INLET PROTECTION.

2. CRUSHED ROCK SHALL BE 2.0"—3.0" IN SIZE WITH A FRACTURED FACE (ALL SIDES).

3. ROCK SOCK SHALL BE ONE CONTINUOUS PIECE OR SHALL BE CONSTRUCTED USING WIRE WRAPPED JOINTS (SEE DETAIL RS).

4. ROCK SOCK SHALL BE CONSTRUCTED USING CHICKEN WIRE OR OTHER APPROVED MATERIAL SIZED TO KEEP ROCK FROM SPILLING OUT.

5. ROCK SOCK SHALL EXTEND 3.0' ALONG THE CURB BEYOND LOCATIONS WHERE IT RETURNS TO CONTACT CURB FACE.

6. TUBULAR TRAFFIC MARKERS SHALL BE A MINIMUM OF 36" IN HEIGHT WITH REFLECTIVE BANDS AND OCTAGON SHAPED BASES.

7. THE CURB INLET PROTECTION SHOWN ON CBMP PLAN SHALL BE INSTALLED ON EXISTING INLETS PRIOR TO ANY LAND DISTURBING ACTIVITIES OR IMMEDIATELY AFTER THE INSTALLATION OF THE FIRST LIFT OF ASPHALT ON ROADWAYS DRAINING TO THE CURB INLET. CMU BLOCKS OR THE ROCK SOCK SHALL BE USED AS INTERIM PROTECTION UNTIL THE FIRST LIFT OF ASPHALT IS INSTALLED.

CURB INLET PROTECTION INSPECTION AND MAINTENANCE NOTES

1. THE EROSION CONTROL SUPERVISOR SHALL REGULARLY INSPECT THE CURB INLET PROTECTION.

2. ACCUMULATED SEDIMENT SHALL BE REMOVED AS SOON AS POSSIBLE, IMMEDIATELY IN MOST CASES.

3. ROCK SOCKS SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED OR DAMAGED.

4. CURB INLET PROTECTION SHALL REMAIN IN PLACE AND PROPERLY MAINTAINED UNTIL VEGETATIVE COVER HAS REACHED A CONSISTENT DENSITY OF AT LEAST 70% OF FULL VEGETATIVE COVER AND EROSION AND SEDIMENTATION IS NO LONGER A POSSIBILITY AS DETERMINED BY THE TOWN'S INSPECTOR OR AS OTHERWISE DIRECTED BY THE TOWN'S INSPECTOR.

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EROSION CONTROL BLANKET FOR LOT PROTECTION INSTALLATION NOTES

1. ALL EROSION CONTROL BLANKETS FOR LOT PROTECTION INSTALLED IN THE TOWN SHALL MEET THE FOLLOWING MINIMUM REQUIREMENTS:

MANUFACTURER	PRODUCT NAME
NORTH AMERICAN GREEN	S150 BN
APPROVED EQUAL	APPROVED EQUAL

2. ALL EROSION CONTROL BLANKETS FOR LOT PROTECTION SHALL BE INSTALLED ACCORDING TO THE DETAIL DRAWINGS, WITH THE FOLLOWING ALLOWANCES AND ADDITIONS:

■ THE TOWN WILL ALLOW THE USE OF BIODEGRADABLE, EROSION CONTROL BLANKET-SPECIFIC STAPLES, IN LIEU OF TRADITIONAL METAL STAPLES.

■ ALL EROSION CONTROL BLANKET EDGES (SIDES AND ENDS) MUST OVERLAP THE ADJACENT BLANKET BY A MINIMUM OF 6-INCHES WITH THE UP-GRADIENT EDGES BEING PLACED ON TOP OF THE DOWN-GRADIENT EDGE OF THE ADJACENT BLANKET.

■ THE EDGES (SIDES AND ENDS) OF THE EROSION CONTROL BLANKETS DO NOT NEED TO BE TRENCHED INTO THE GROUND ASSUMING THE SITE CONDITIONS WILL NOT CAUSE EROSION BENEATH THE BLANKETS. THESE ASSUMPTIONS WILL BE THE RESPONSIBILITY OF THE EROSION CONTROL SUPERVISOR. ON OCCASION, THE TOWN'S INSPECTOR MAY REQUEST TRENCHING BASED UPON SITE CONDITIONS.

■ TOPSOIL PLACEMENT, SEEDING, AND MULCHING WILL NOT BE REQUIRED ON THE LOTS PRIOR TO THE INSTALLATION OF THE EROSION CONTROL BLANKET.

3. ANY DAMAGED OR EXCESS STAPLES SHALL BE REMOVED FROM THE SITE FOLLOWING INSTALLATION.

4. THE EROSION CONTROL BLANKETING REQUIRED AS PART OF THE LOT PROTECTION (LP) REQUIREMENT MUST BE INSTALLED OVER ALL UN-LANDSCAPED AREAS WITHIN EACH RESIDENTIAL, MULTI-FAMILY, AND COMMERCIAL LOT PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY / TEMPORARY CERTIFICATE OF OCCUPANCY.

EROSION CONTROL BLANKET FOR LOT PROTECTION MAINTENANCE NOTES

1. THE EROSION CONTROL SUPERVISOR SHALL REGULARLY INSPECT THE EROSION CONTROL BLANKET FOR LOT PROTECTION.

2. EROSION CONTROL BLANKETS FOR LOT PROTECTION ARE INTENDED TO REMAIN IN PLACE AND MAINTAINED UNTIL LANDSCAPING IS INSTALLED.

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MASONRY WORK PROTECTION INSTALLATION NOTES

1. MASONRY WORK PROTECTION MAY NEED TO BE INSTALLED WHEN MASONRY WORK AND MIXING IS OCCURRING.

2. A ROCK SOCK SHALL BE INSTALLED IN A CRESCENT SHAPE ON THE DOWNHILL SIDE OF THE MASONRY WORK AND MIXER.

3. CRUSHED ROCK SHALL BE 2.0"—3.0" IN SIZE WITH A FRACTURED FACE (ALL SIDES).

4. ROCK SOCK SHALL BE ONE CONTINUOUS PIECE OR SHALL BE CONSTRUCTED USING WIRE WRAPPED JOINTS (SEE DETAIL RS).

5. ROCK SOCK SHALL BE CONSTRUCTED USING CHICKEN WIRE OR OTHER APPROVED MATERIAL, SIZED TO KEEP ROCK FROM SPILLING OUT.

MASONRY WORK PROTECTION INSPECTION AND MAINTENANCE NOTES

1. THE EROSION CONTROL SUPERVISOR SHALL REGULARLY INSPECT THE MASONRY WORK PROTECTION.

2. ALL CONCRETE WASTE SHALL BE REGULARLY CLEANED AND PLACED IN THE CONCRETE WASH OUT AREA.

3. ROCK SOCKS SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED OR DAMAGED.

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NEW HORIZON ACADEMY -
DOUGLAS 234 FILING, NO. 6
PARKER, CO

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Checked By
Drawn By

NHOAC 156217
DBH
AMP

Project Status
TOWN REVIEW
TOWN REVIEW
TOWN REVIEW

Issue Date
8/26/2020
1/22/2021
3/22/2021

Revision Issue
Rev. #
Description
Date

1
TOWN COMMENTS
1/22/21

2
TOWN COMMENTS
3/22/21

CBMP DETAILS
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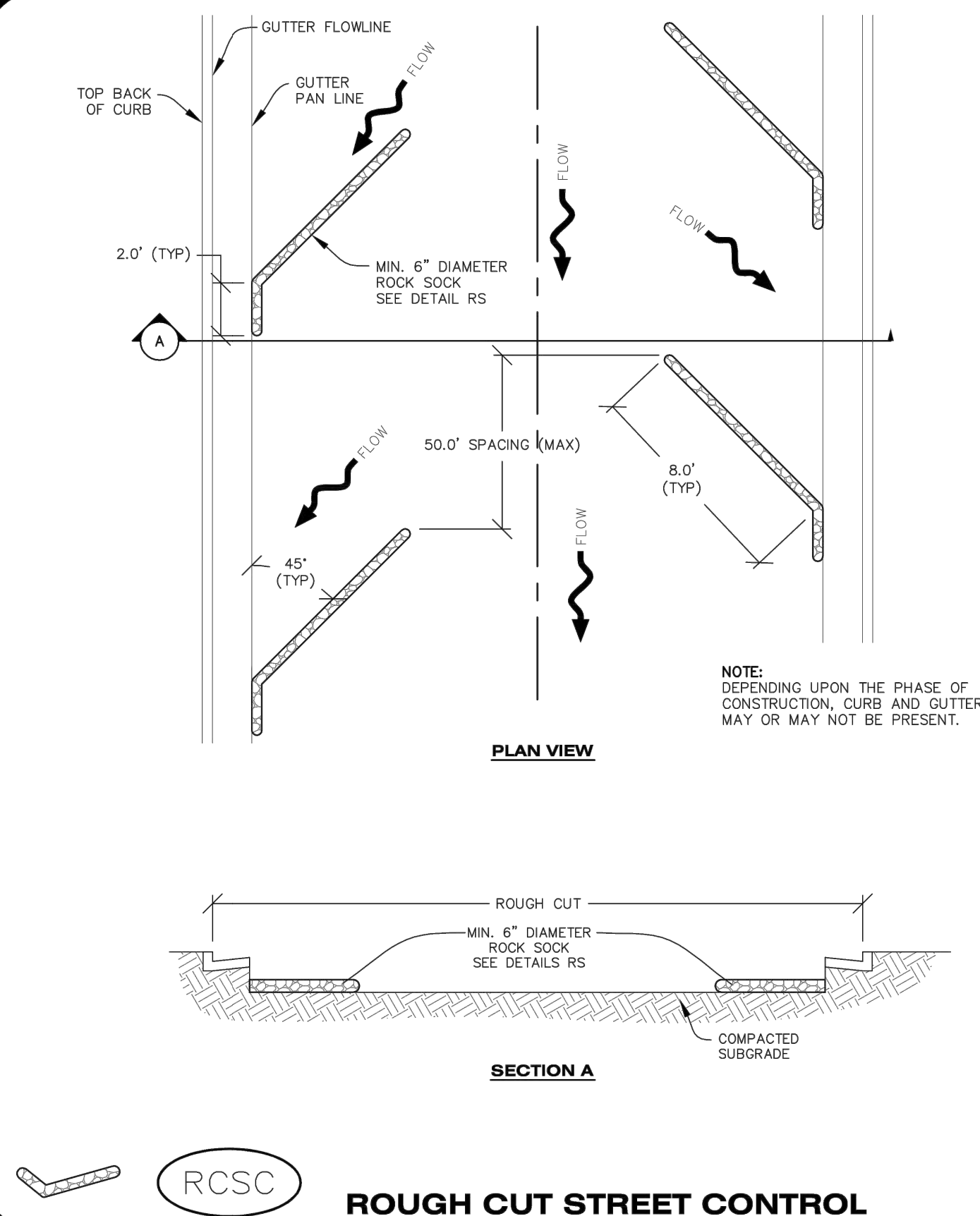
PORTABLE TOILET PROTECTION INSTALLATION NOTES

1. PORTABLE TOILETS SHALL BE PLACED A MINIMUM OF 10.0' BEHIND ALL CURBS, SIDEWALKS, AND OTHER IMPERVIOUS AREAS.
2. ALL PORTABLE TOILETS MUST BE GROUPED TOGETHER.
3. PORTABLE TOILETS SHALL BE SECURELY ANCHORED TO THE GROUND USING U-SHAPED REBAR STAKES.
4. U-SHAPED REBAR STAKES SHALL BE POSITIONED ON AT LEAST 2 OPPOSING (DIGITAL) CORNERS.

PORTABLE TOILET PROTECTION INSPECTION AND MAINTENANCE NOTES

2. THE EROSION CONTROL SUPERVISOR SHALL REGULARLY INSPECT THE PORTABLE TOILET PROTECTION.
3. PORTABLE TOILETS SHALL BE SERVICED AT THE NECESSARY INTERVALS TO ELIMINATE THE POSSIBILITY OF OVERFLOW.
4. WHEN THE PORTABLE TOILETS ARE REMOVED, ANY DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION, MAINTENANCE, AND/OR REMOVAL OF THE TOILETS MAY NEED TO BE LANDSCAPED OR ROUGHENED, SEEDED, MULCHED, AND CRIMPED PER THE TOWN'S SPECIFICATIONS (SEE DETAIL SMC).
5. PORTABLE TOILETS THAT ARE NOT CONSISTENTLY MAINTAINED IN ACCORDANCE WITH THESE REQUIREMENTS MAY NEED TO BE CLUSTERED TOGETHER, IN ONE CENTRALIZED LOCATION IN ORDER TO INCREASE COMPLIANCE AND REDUCE THE CHANCE OF A SPILL.

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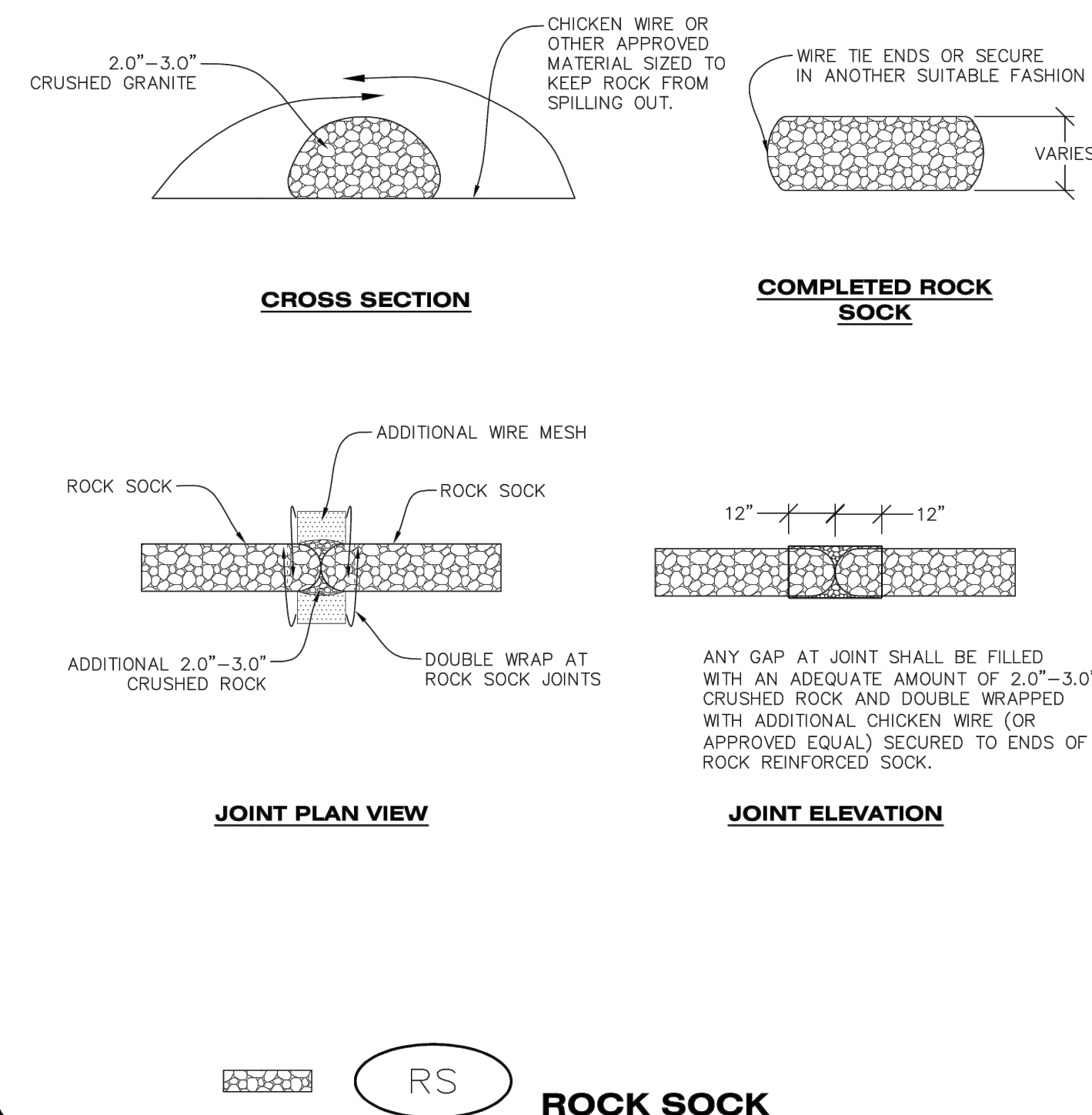
ROUGH CUT STREET CONTROL INSTALLATION NOTES

1. SEE CBMP PLAN FOR LOCATION(S) OF ROUGH CUT STREET CONTROL.
2. THE SPACING OF THE ROUGH CUT STREET CONTROL MAY BE DETERMINED BY THE DESIGN ENGINEER AND SHOWN ON THE CBMP PLAN.

ROUGH CUT STREET CONTROL INSPECTION AND MAINTENANCE NOTES

1. THE EROSION CONTROL SUPERVISOR SHALL REGULARLY INSPECT THE ROUGH CUT STREET CONTROL.
2. ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN THE SEDIMENT DEPTH IS 1/2 THE HEIGHT OF THE ROCK SOCK.
3. ROUGH CUT STREET CONTROL SHALL BE REPAIRED IMMEDIATELY FOLLOWING ANY SIGN OF WEAR OR ALTERATION OF THE ORIGINAL SHAPE AND DIMENSIONS.
4. ROUGH CUT STREET CONTROL SHALL BE KEPT IN PLACE AND MAINTAINED UNTIL SUB-GRADE PREPARATION BEGINS FOR PAVING. AT THAT POINT, THE RCSC SHOULD BE REMOVED IN INCREMENTS BASED ON SUBGRADE PREPARATION.

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CONSTRUCTION BEST MANAGEMENT PRACTICES

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RS

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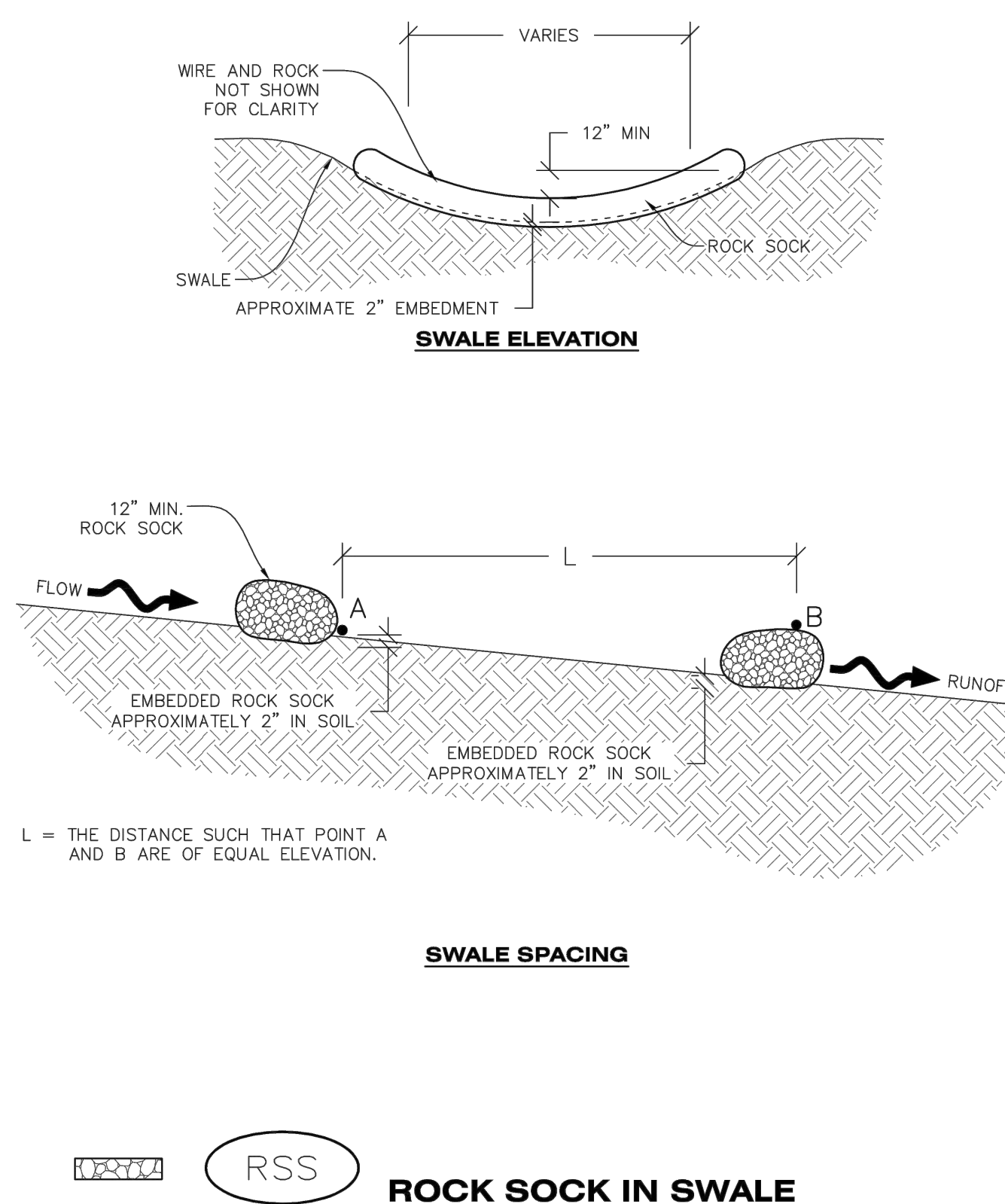
ROCK SOCK INSTALLATION NOTES

1. SEE CBMP PLAN FOR LOCATION(S) OF ROCK SOCK.
2. CRUSHED ROCK SHALL BE APPROXIMATELY 2.0"–3.0" GRANITE IN SIZE WITH A FRACTURED FACE (ALL SIDES).
3. ROCK SOCK SHALL BE APPROXIMATELY ONE CONTINUOUS PIECE OR SHALL BE CONSTRUCTED USING WIRE WRAPPED JOINTS (SEE DETAIL RS).
4. ROCK SOCK SHALL BE CONSTRUCTED USING CHICKEN WIRE OR OTHER APPROVED MATERIAL SIZED TO KEEP ROCK FROM SPILLING OUT.
5. MINIMUM ROCK SOCK DIAMETER SHALL VARY BASED ON APPLICATION (7" MIN).
6. TUBULAR MARKERS MAY NEED TO BE USED IN CONJUNCTION WITH ROCKS SOCKS ANYTIME THE ROCK SOCK IS PLACED ON A ROADWAY, SIDEWALK, PARKING LOT OR OTHER LOCATION SUSCEPTIBLE TO VEHICLE OR PEDESTRIAN TRAFFIC. TUBULAR MARKERS SHALL CONFORM TO THE TUBULAR MARKER DETAIL.

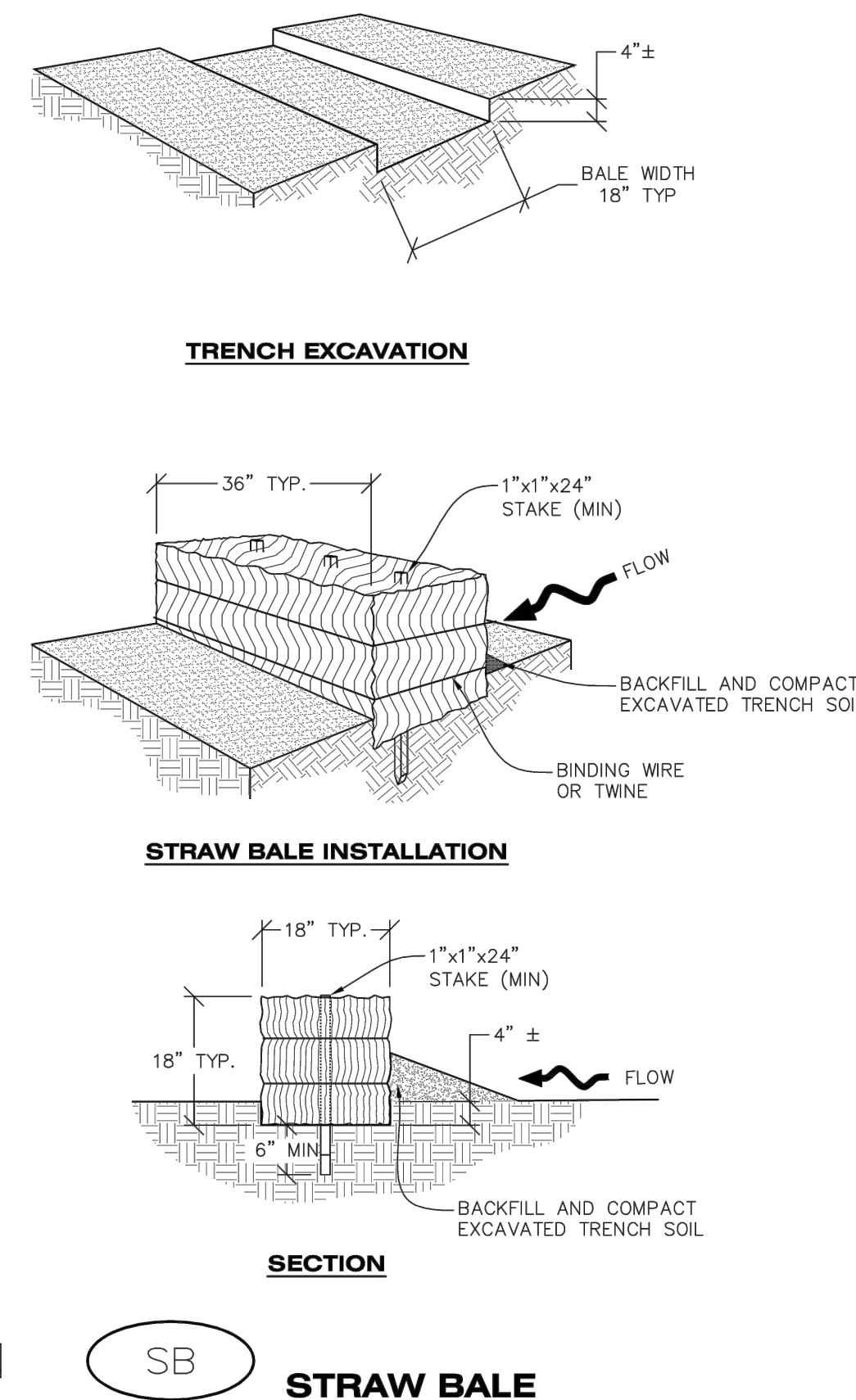
ROCK SOCK INSPECTION AND MAINTENANCE NOTES

1. THE EROSION CONTROL SUPERVISOR SHALL REGULARLY INSPECT THE ROCK SOCKS.
2. ROCK SOCKS SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED OR DAMAGED.
3. ROCK SOCKS SHALL REMAIN IN PLACE AND PROPERLY MAINTAINED UNTIL VEGETATIVE COVER HAS REACHED A CONSISTENT DENSITY OF AT LEAST 70% OF FULL VEGETATIVE COVER AND EROSION AND SEDIMENTATION IS NO LONGER A POSSIBILITY AS DETERMINED BY THE TOWN'S INSPECTOR OR AS OTHERWISE DIRECTED BY THE TOWN'S INSPECTOR.

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STRAW BALE INSTALLATION NOTES

1. SEE CBMP PLAN FOR LOCATION(S) OF STRAW BALES.
2. TYPICAL STRAW BALES SHALL BE APPROXIMATELY 36"x18"x18".
3. TWO (2) WOODEN STAKES SHALL BE USED TO HOLD EACH BALE IN PLACE. WOODEN STAKES SHALL BE A MINIMUM OF 1"x1"x24".
4. WOODEN STAKES SHALL BE PLACED APPROXIMATELY 6" INTO THE GROUND.
5. STRAW BALES SHALL BE SPACED AND POSITIONED ACCORDING TO DETAILS.

STRAW BALE INSPECTION AND MAINTENANCE NOTES

1. THE EROSION CONTROL SUPERVISOR SHALL REGULARLY INSPECT THE STRAW BALES.
2. ACCUMULATED SEDIMENT SHALL BE REMOVED ONCE THE SEDIMENT HAS REACHED A DEPTH EQUAL TO 1/2 THE HEIGHT OF THE STRAW BALE.
3. STRAW BALES MAY NEED TO BE REPLACED IF THEY BECOME HEAVILY SOILED, ROTTEN, OR OTHERWISE DAMAGED.
4. STRAW BALES SHALL REMAIN IN PLACE AND PROPERLY MAINTAINED UNTIL VEGETATIVE COVER HAS REACHED A CONSISTENT DENSITY OF AT LEAST 70% OF FULL VEGETATIVE COVER AND EROSION AND SEDIMENTATION IS NO LONGER A POSSIBILITY AS DETERMINED BY THE TOWN'S INSPECTOR OR AS OTHERWISE DIRECTED BY THE TOWN'S INSPECTOR.
5. WHEN THE STRAW BALES ARE REMOVED, ANY DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION, MAINTENANCE, AND/OR REMOVAL OF THE STRAW BALES MAY NEED TO BE ROUGHENED, SEEDED, MULCHED, AND CRIMPED PER THE TOWN'S SPECIFICATIONS (SEE DETAIL SMC).



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SB

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SEEDING AND MULCHING MAINTENANCE NOTES

1. THE EROSION CONTROL SUPERVISOR SHALL REGULARLY INSPECT THE SEEDING AND MULCHING.
2. ANY SEEDED AND MULCHED AREAS THAT BECOME DAMAGED SHALL BE REPAIRED WITHIN THE TIME FRAME SPECIFIED BY THE TOWN'S INSPECTOR.

WEED MANAGEMENT

1. ALL HERBICIDES SHALL BE APPLIED BY COMMERCIAL PESTICIDE APPLICATORS LICENSED BY THE COLORADO DEPARTMENT OF AGRICULTURE AS QUALIFIED APPLICATORS. THE CONTRACTOR SHALL FURNISH DOCUMENTATION OF SUCH LICENSING PRIOR TO HERBICIDE APPLICATION.
2. HERBICIDE APPLICATION METHOD SHALL BE SUCH THAT PLANT GROWTH OUTSIDE THE DESIGNATED TREATMENT AREAS WILL NOT BE DAMAGED. ALL DAMAGE CAUSED BY IMPROPER HERBICIDE APPLICATION SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
3. HERBICIDES SHALL BE APPLIED DURING THE APPROPRIATE SEASONS, WHEN TARGET PLANTS ARE ACTIVELY GROWING.
4. AFTER THE GRASS SEED IS ESTABLISHED, APPROPRIATE HERBICIDES SHALL BE APPLIED TO CONTROL THE REMAINING WEEDS TO ENSURE A TIMELY RETURN OF THE FINANCIAL SECURITY. PROPER TIMING OF HERBICIDE APPLICATIONS ARE NECESSARY TO ACHIEVE THE SUPPRESSION OF WEED SEED PRODUCTION AND DEPLETION OF WEED ROOT MASS. ULTIMATELY, THE HERBICIDES USED SHALL BE BASED UPON THE TARGET WEEDS.
5. HERBICIDE TREATMENTS SHALL CONTINUE AT AN APPROPRIATE RATE UNTIL IT IS EVIDENT THAT WEED GROWTH PRESENCE AND GROWTH IS MINIMAL AND MAY BE CONTROLLED THROUGH MOWING AND/OR ANNUAL HERBICIDE TREATMENT.

NO CHANGES ARE TO BE MADE TO THIS DRAWING WITHOUT WRITTEN PERMISSION OF THE TOWN OF PARKER.

TOWN OF PARKER, SEED MIX 1

20% CANADA WILDRYE
15% CRESTED WHEATGRASS
15% SLENDER WHEATGRASS
10% ANNUAL RYEGRASS
10% SHEEP FESCUE
10% BIG BLUESTEM
10% SIDEOTS GRAMA
5% CANADA BLUEGRASS
5% BLUE GRAMA

SEEDING RATE:

DRILLED: 25 LBS/ACRE
BROADCAST: 50 LBS/ACRE

TOWN OF PARKER, SEED MIX 2

22% SLENDER WHEATGRASS
18% SODAR STREAMBANK WHEATGRASS
13% ARIZONA FESCUE
13% BLUE GRAMA
12% BUFFALOGRASS
12% BARLEY OR OATS
5% SPIKE MUHLY
5% INDIAN RICEGRASS

SEEDING RATE:

DRILLED: 25 LBS/ACRE
BROADCAST: 50 LBS/ACRE

TOWN OF PARKER, SEED MIX 3 (LOW-GROWTH MIX)

25% EPHRAIM CRESTED WHEATGRASS
23% SHEEP FESCUE
18% PERENNIAL RYEGRASS
13% CANADA BLUEGRASS
12% BARLEY OR OATS
9% BLUE FESCUE

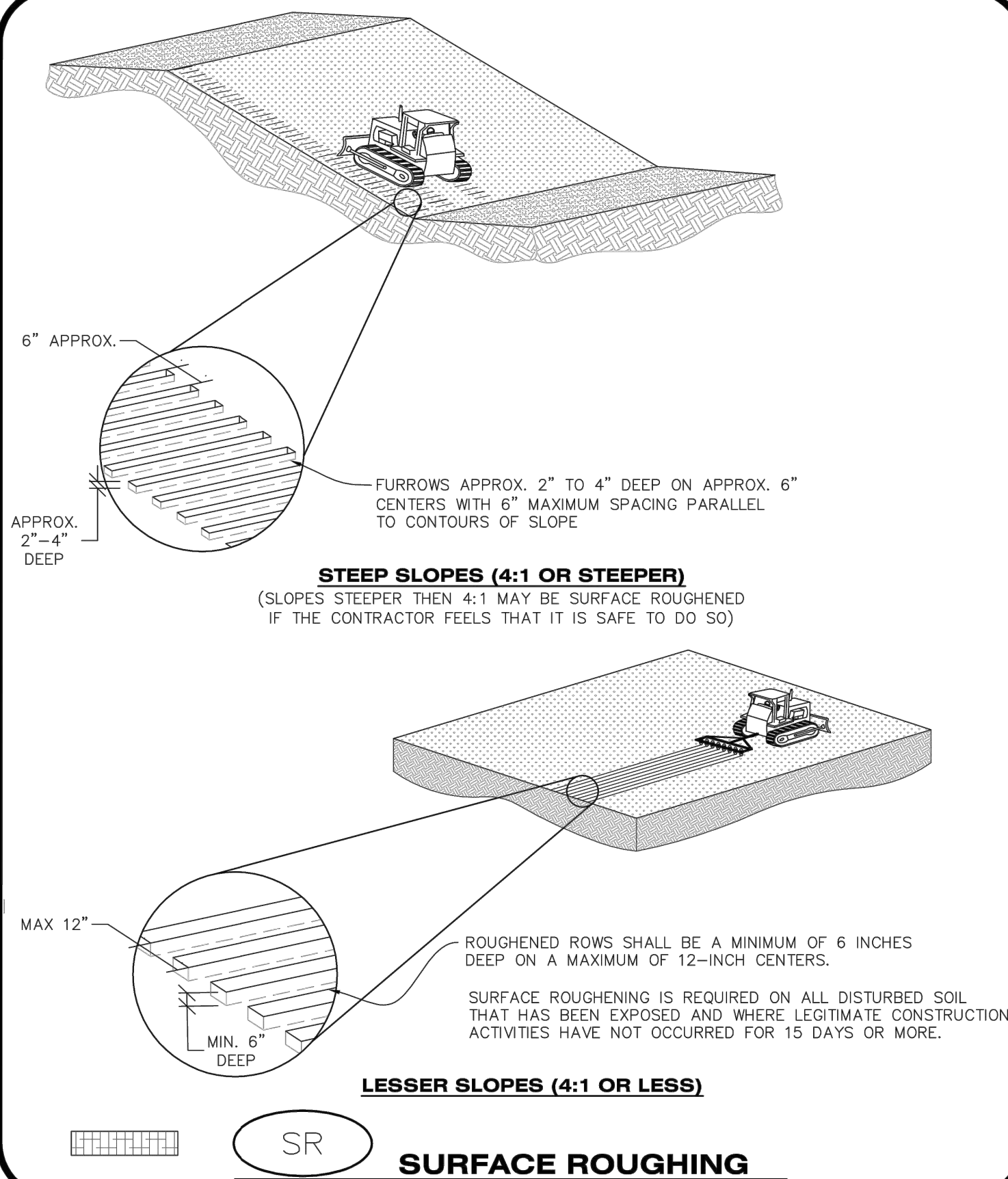
SEEDING RATE:

DRILLED: 25 LBS/ACRE
BROADCAST: 50 LBS/ACRE

SEED MIX 4:

OTHER SEED MIXES APPROVED BY THE TOWN OF PARKER

NO CHANGES ARE TO BE MADE TO THIS DRAWING WITHOUT WRITTEN PERMISSION OF THE TOWN OF PARKER.



STEEP SLOPES (4:1 OR STEEPER)

(SLOPES STEEPER THEN 4:1 MAY BE SURFACE ROUGHENED IF THE CONTRACTOR FEELS THAT IT IS SAFE TO DO SO)

LESSER SLOPES (4:1 OR LESS)

SURFACE ROUGHENING



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CONSTRUCTION BEST MANAGEMENT PRACTICES

SMC

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CONSTRUCTION BEST MANAGEMENT PRACTICES

SR

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Oct. 2013



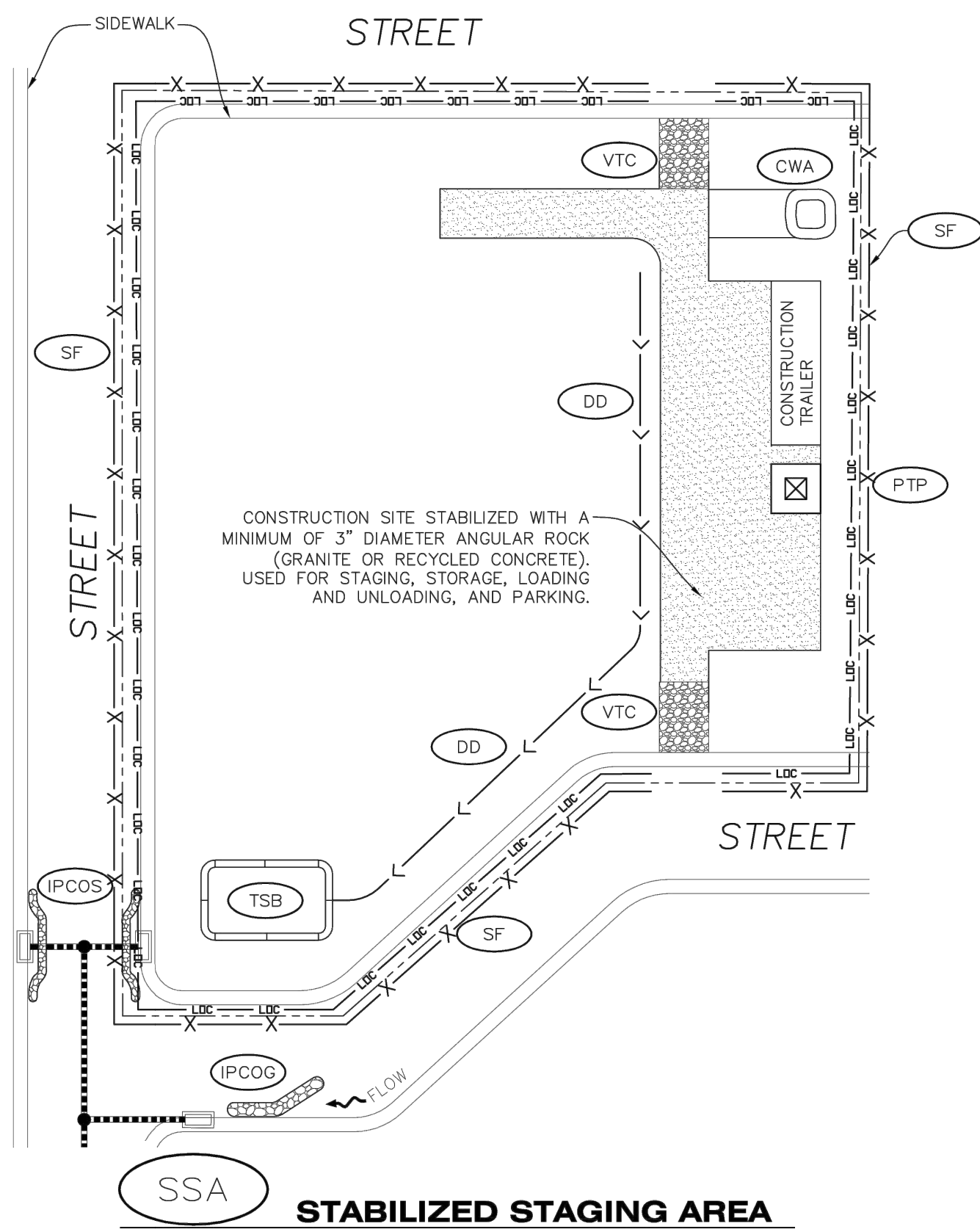
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CONSTRUCTION BEST MANAGEMENT PRACTICES

SR

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STABILIZED STAGING AREA

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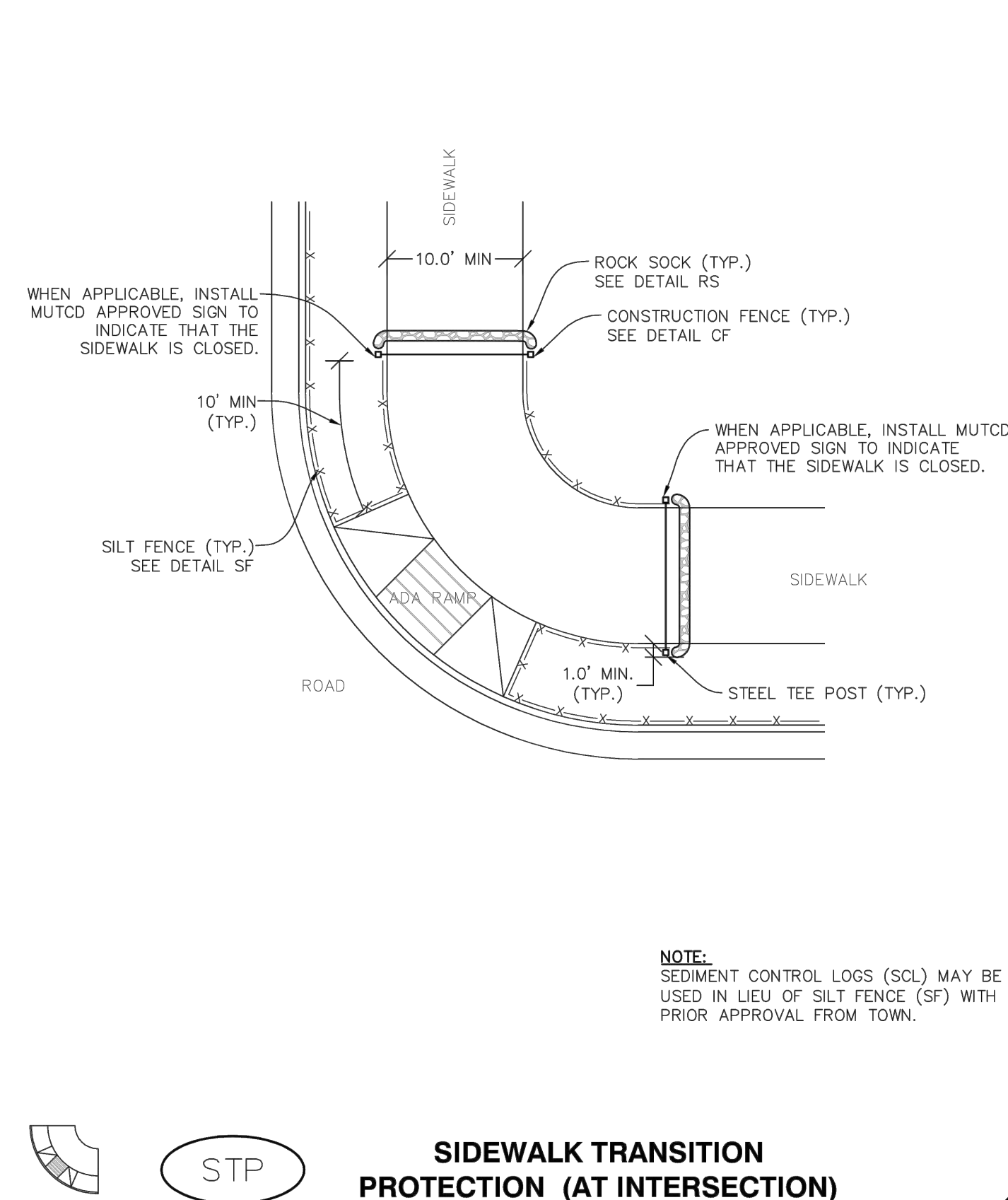
STABILIZED STAGING AREA INSTALLATION NOTES

1. SEE CBMP PLAN FOR LOCATION OF STAGING AREA. CONTRACTOR MAY MODIFY LOCATION AND SIZE OF STABILIZED STAGING AREA WITH TOWN APPROVAL.
2. STABILIZED STAGING AREA SHALL BE LARGE ENOUGH TO FULLY CONTAIN PARKING, STORAGE, AND LOADING OPERATIONS.
3. THE STABILIZED STAGING AREA SHALL CONSIST OF A MINIMUM OF 3" DIAMETER OF ANGULAR ROCK (GRANITE OR RECYCLED CONCRETE).
4. SSA FOR SMALLER SITES MAY NOT BE PRACTICAL. IN THESE AND SIMILAR SITUATIONS, VARIANCES MAY BE PERMITTED BY THE TOWN.

STABILIZED STAGING AREA INSPECTION AND MAINTENANCE NOTES

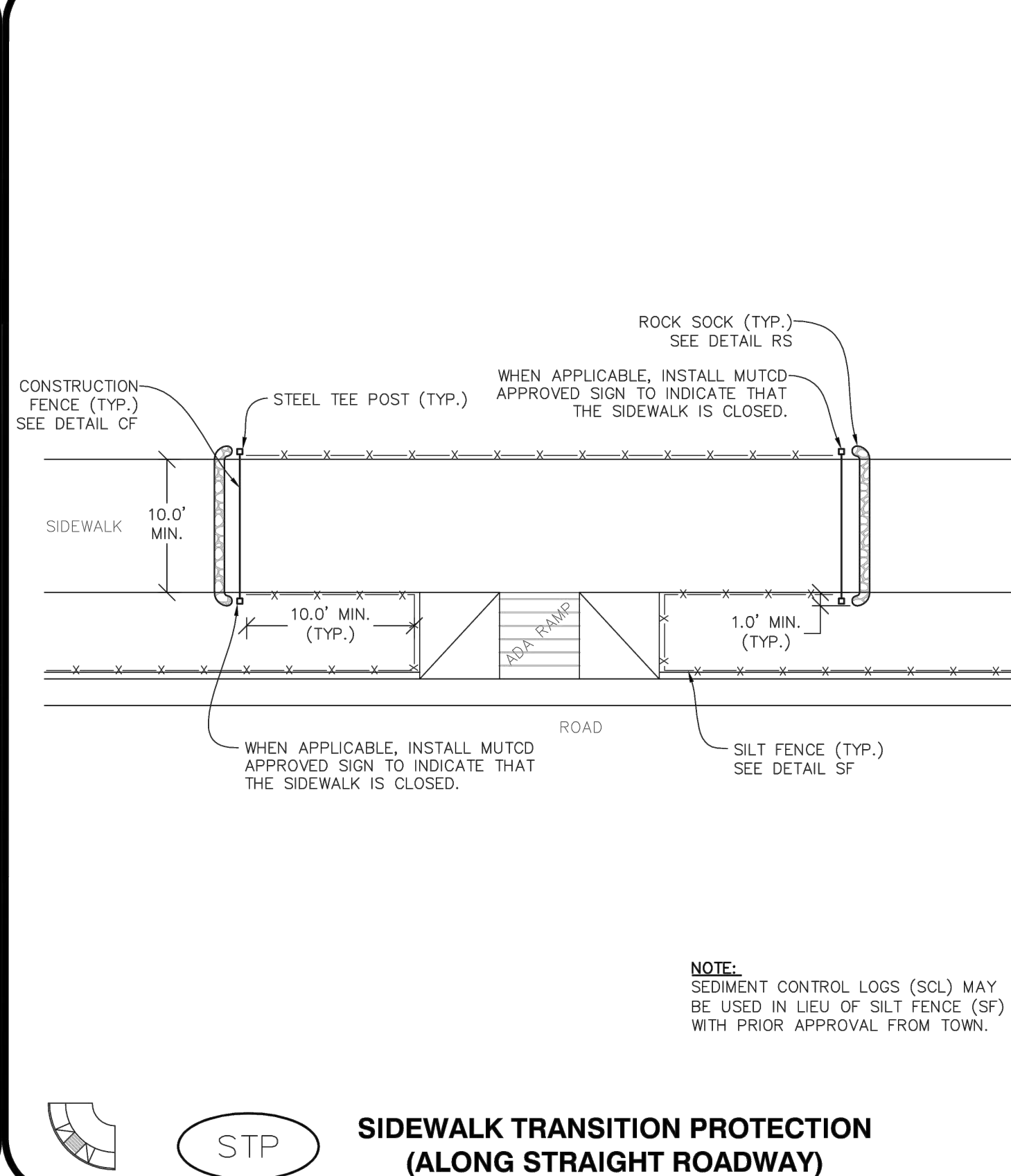
1. THE EROSION CONTROL SUPERVISOR SHALL REGULARLY INSPECT THE STAGING AREA.
2. STABILIZED STAGING AREA SHALL BE ENLARGED AS NECESSARY TO CONTAIN PARKING, STORAGE, LOADING, AND UNLOADING.

NO CHANGES ARE TO BE MADE TO THIS DRAWING WITHOUT WRITTEN PERMISSION OF THE TOWN OF PARKER.



SIDEWALK TRANSITION PROTECTION (AT INTERSECTION)

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SIDEWALK TRANSITION PROTECTION (ALONG STRAIGHT ROADWAY)



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CONSTRUCTION BEST MANAGEMENT PRACTICES

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CBMP

CONSTRUCTION BEST MANAGEMENT PRACTICES

STP

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1/22/2021
3/22/2021

Rev. #	Description	Date
1	TOWN COMMENTS	1/22/21
2	TOWN COMMENTS	3/22/21

CBMP DETAILS

1

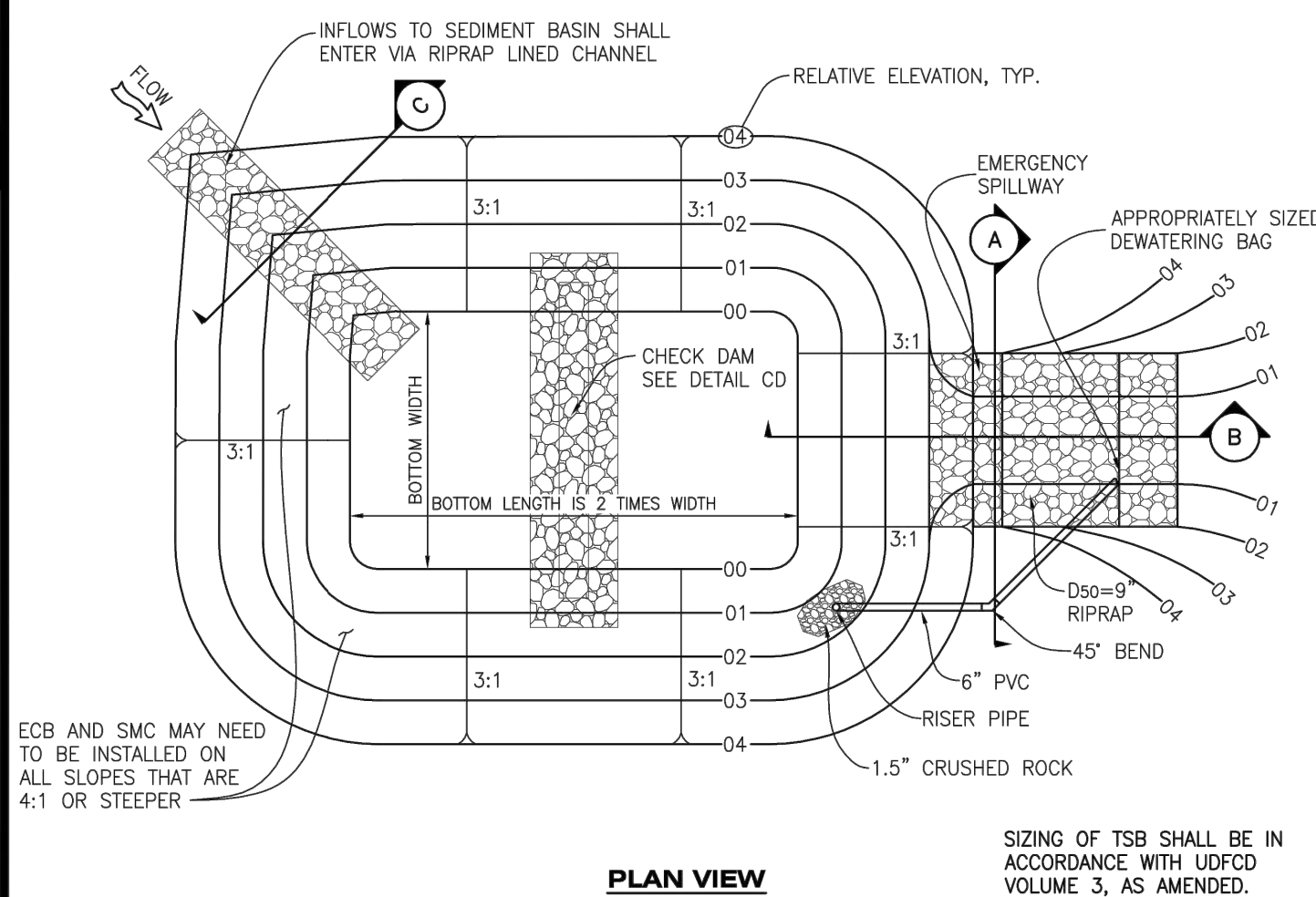
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SIDEWALK TRANSITION PROTECTION INSTALLATION NOTES

- SEE PLAN VIEW FOR LOCATION(S) OF SIDEWALK TRANSITION PROTECTION.
- ROCK SOCK SHALL BE CONSTRUCTED ACCORDING TO THE DETAIL (SEE DETAIL RS).
- SILT FENCE SHALL BE CONSTRUCTED ACCORDING TO THE DETAIL (SEE DETAIL SF).
- CONSTRUCTION FENCE SHALL BE CONSTRUCTED ACCORDING TO THE DETAIL (SEE DETAIL CF).
- SEDIMENT CONTROL LOGS MAY BE USED IN LIEU OF SILT FENCE WITH PRIOR APPROVAL FROM THE TOWN.

SIDEWALK TRANSITION PROTECTION INSPECTION & MAINTENANCE NOTES

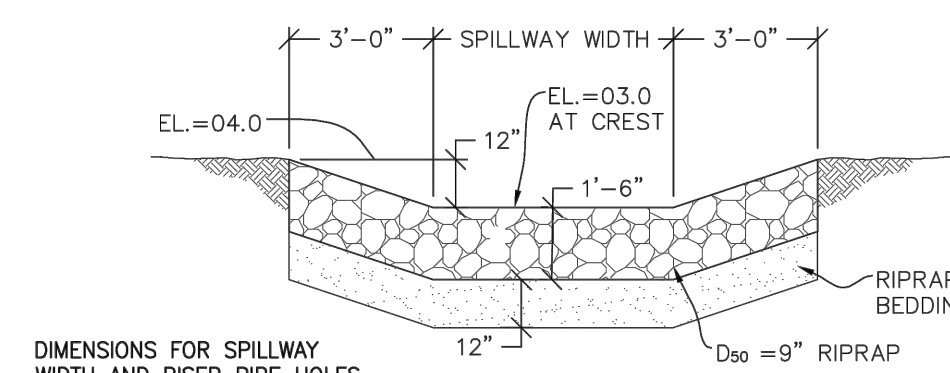
- THE EROSION CONTROL SUPERVISOR SHALL REGULARLY INSPECT THE SIDEWALK TRANSITION INSPECTION.



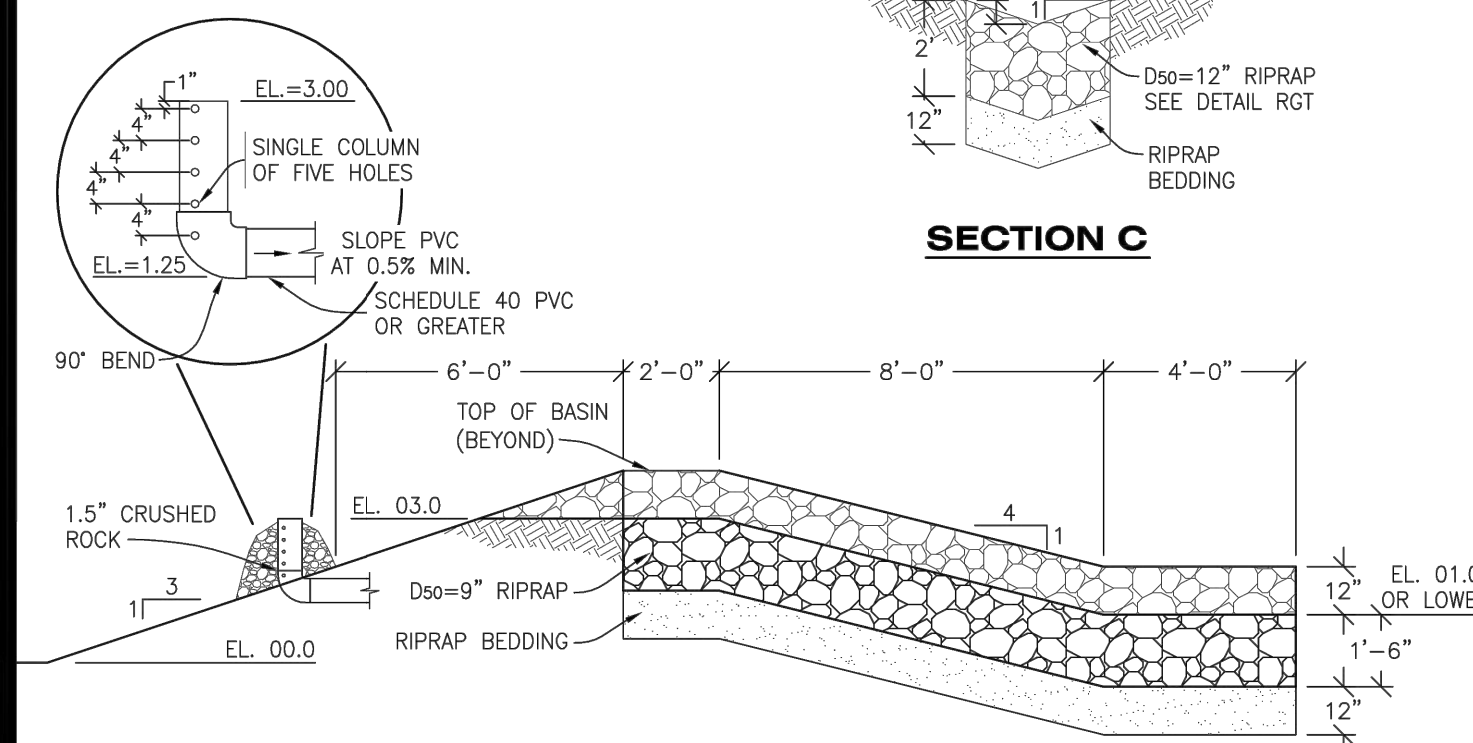
PLAN VIEW

TSB

TEMPORARY SEDIMENT BASIN



SECTION A



SECTION B

SECTION C

TSB

TEMPORARY SEDIMENT BASIN



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CONSTRUCTION BEST MANAGEMENT PRACTICES

TSB

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TSB

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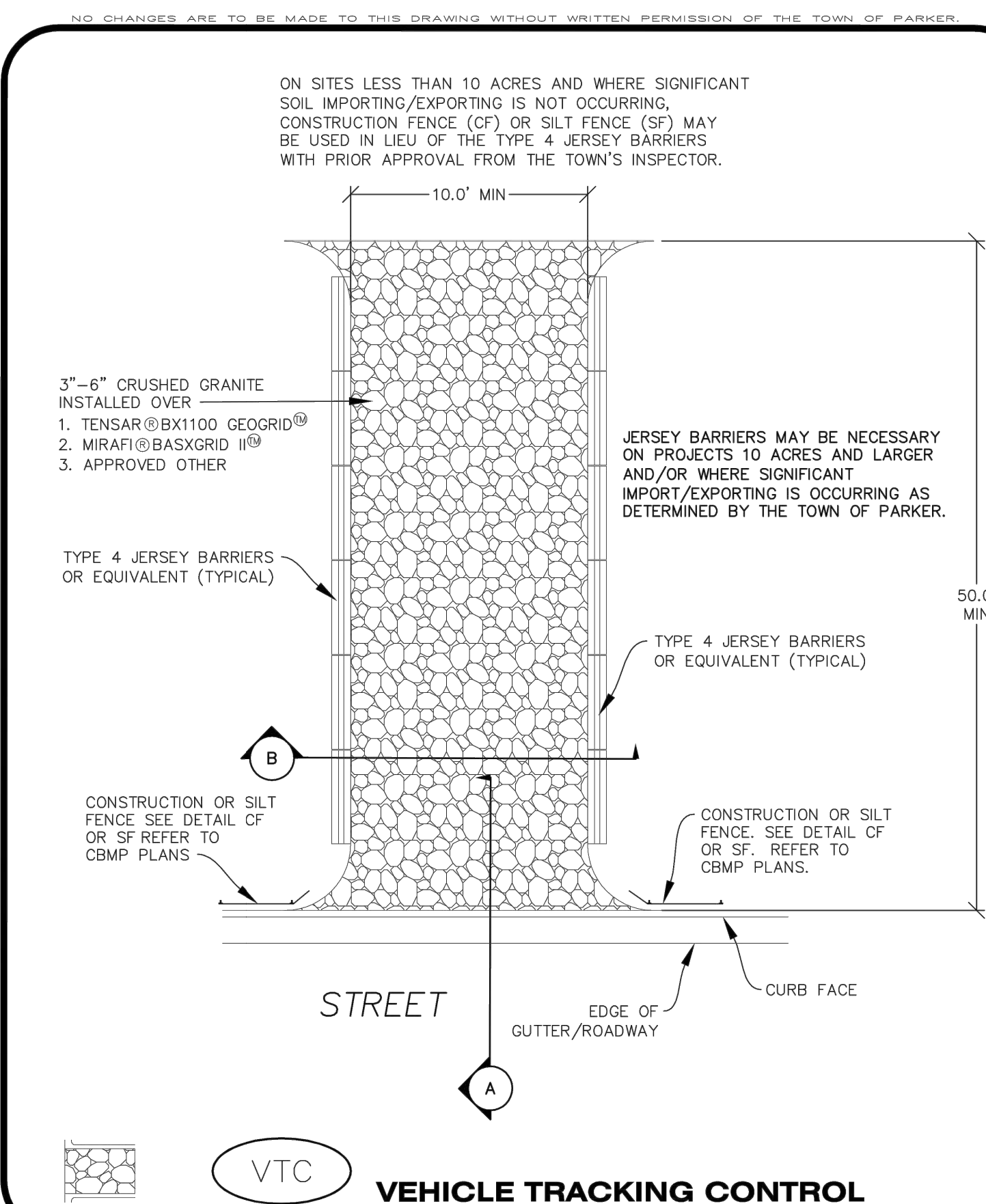


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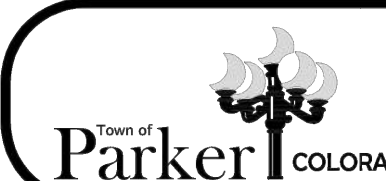
TSB

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VTC

VEHICLE TRACKING CONTROL

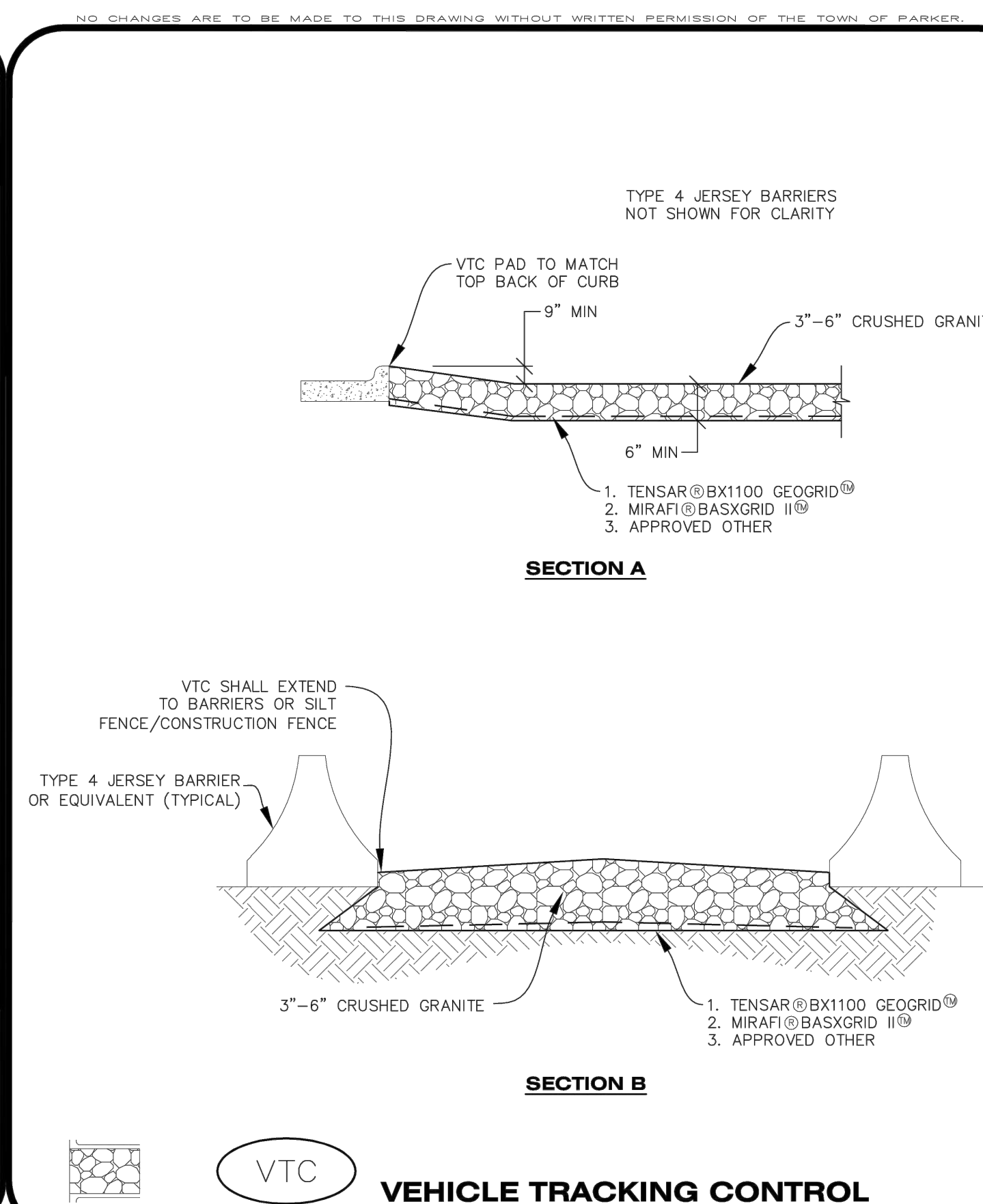


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CONSTRUCTION BEST MANAGEMENT PRACTICES

VTC

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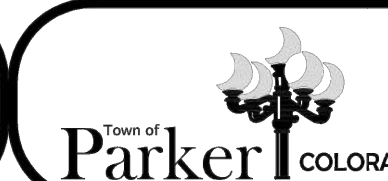


SECTION A

SECTION B

TSB

VEHICLE TRACKING CONTROL

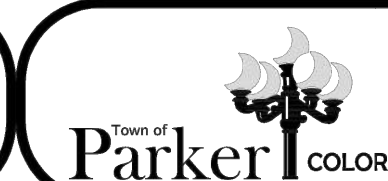


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VTC

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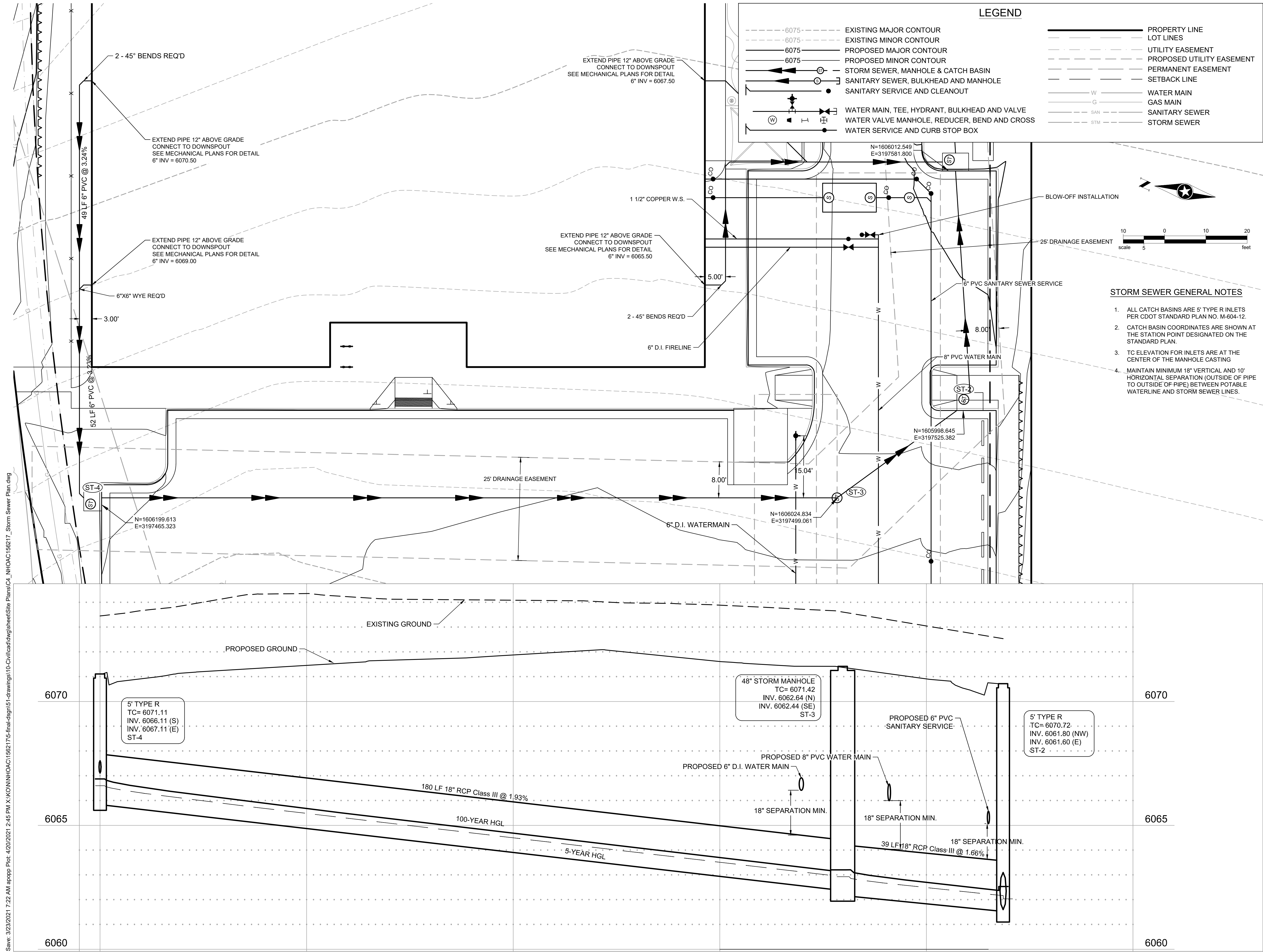
VEHICLE TRACKING CONTROL PAD INSTALLATION NOTES

- SEE CBMP PLAN FOR LOCATION(S) OF VEHICLE TRACKING CONTROL PAD(S).
- ALL CONSTRUCTION TRAFFIC MUST ENTER AND EXIT THE SITE THROUGH THE APPROVED ACCESS POINT(S). A VEHICLE TRACKING CONTROL PAD IS REQUIRED AT ALL APPROVED ACCESS POINTS TO THE SITE. EXCEPTIONS MAY BE CONSIDERED FOR CONSTRUCTION ACTIVITY OCCURRING IMMEDIATELY ADJACENT TO PAVED AREAS AND WHERE ALTERNATIVE BMP'S ARE IMPLEMENTED. SUCH ACTIVITY MAY INCLUDE, BUT NOT BE LIMITED TO RESIDENTIAL CONSTRUCTION, UTILITY CONSTRUCTION, ETC.
- THE VEHICLE TRACKING CONTROL PAD(S) INDICATED ON CBMP PLAN SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBING ACTIVITIES.
- VEHICLE TRACKING CONTROL PADS SHALL BE A MINIMUM OF 50- FEET LONG AND 10- FEET WIDE, UNLESS A VARIANCE HAS BEEN GRANTED BY THE TOWN'S INSPECTOR.
- A BIAXIAL GEO-GRID SHALL BE PLACED UNDER THE VEHICLE TRACKING CONTROL PAD PRIOR TO THE PLACEMENT OF ROCK. THE AREA SHALL BE FREE FROM ANY VOIDS, ROCKS AND DEBRIS. THE BIAXIAL GEO-GRID SHALL BE TENSAR BX1100, MIRAFI BASXGRID II, OR AN APPROVED EQUAL. GEO-GRID SHALL BE PLACED, AND APPROPRIATELY OVERLAPPED IF NECESSARY, TO COVER THE ENTIRE LENGTH AND WIDTH OF THE VEHICLE TRACKING CONTROL PAD.
- CRUSHED ROCK SHALL BE A MINIMUM OF 3-6\"

VEHICLE TRACKING CONTROL PAD INSTALLATION AND MAINTENANCE NOTES

- THE EROSION CONTROL SUPERVISOR SHALL REGULARLY INSPECT THE VEHICLE TRACKING CONTROL PAD.
- WHEN THE VEHICLE TRACKING CONTROL PAD IS REMOVED, ANY DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION, MAINTENANCE, AND/OR REMOVAL OF THE VEHICLE TRACKING CONTROL PAD SHALL BE ROUGHENED, SEEDED, MULCHED, AND CRIMPED PER THE TOWN'S SPECIFICATIONS (SEE DETAIL SMC).
- THE VEHICLE TRACKING CONTROL PAD SHALL BE MAINTAINED SUCH THAT THE ROCK REMAINS RELATIVELY LOOSE AND ACCUMULATED MUD AND OTHER DEBRIS IS REGULARLY REMOVED.

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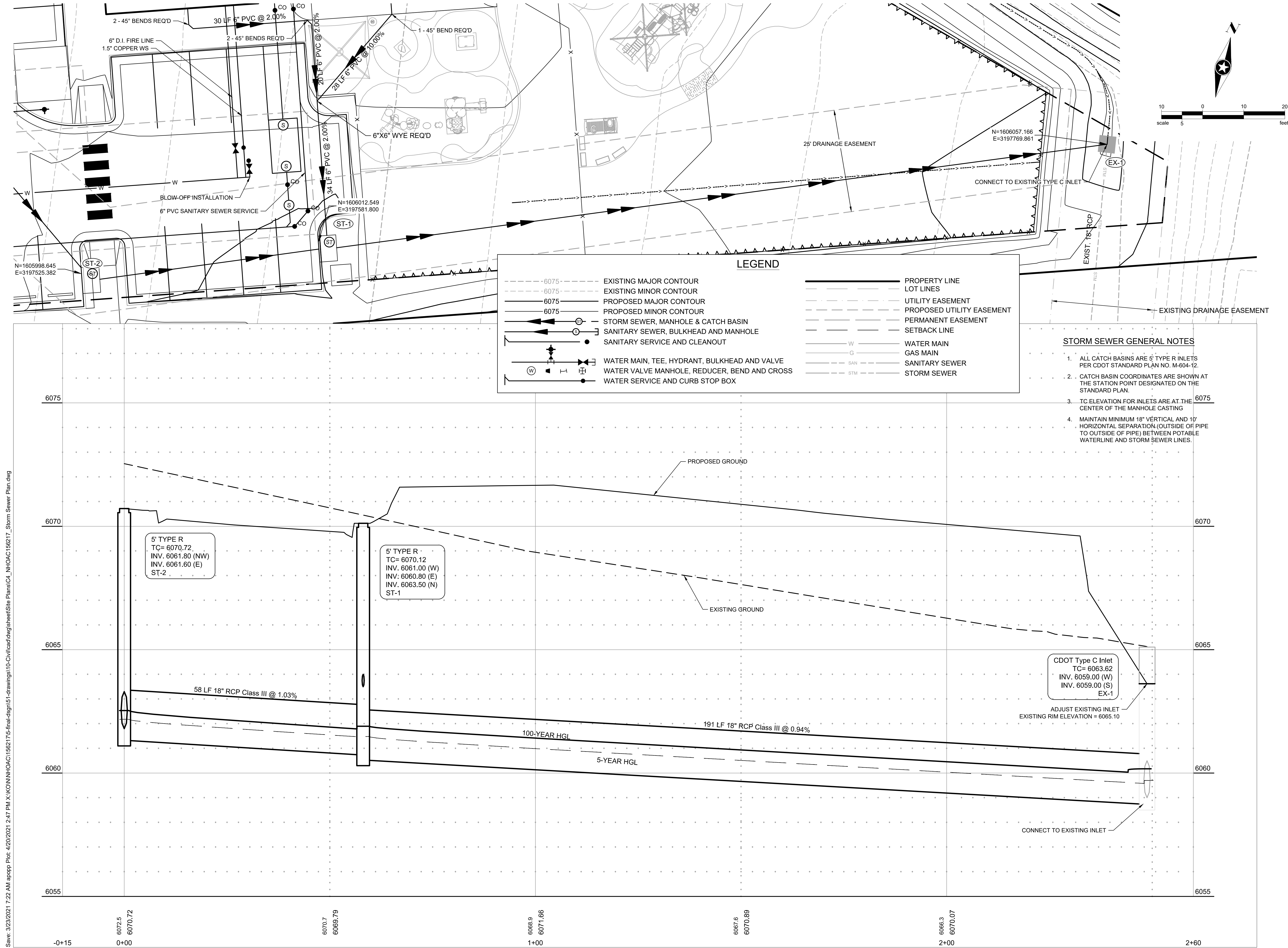
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TOWN REVIEW

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Revision Issue

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1	TOWN COMMENTS	1/22/21
2	TOWN COMMENTS	3/22/21

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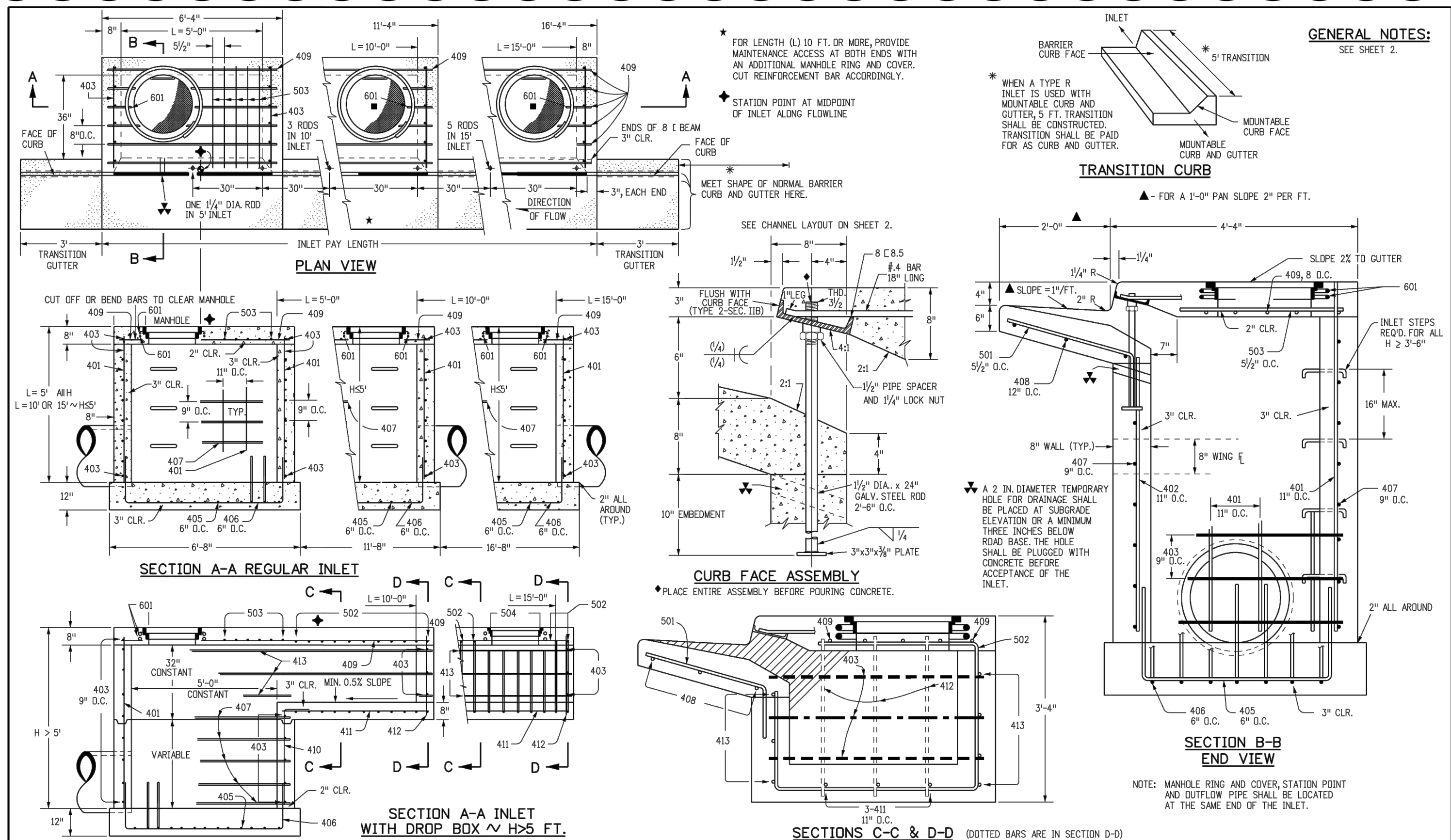
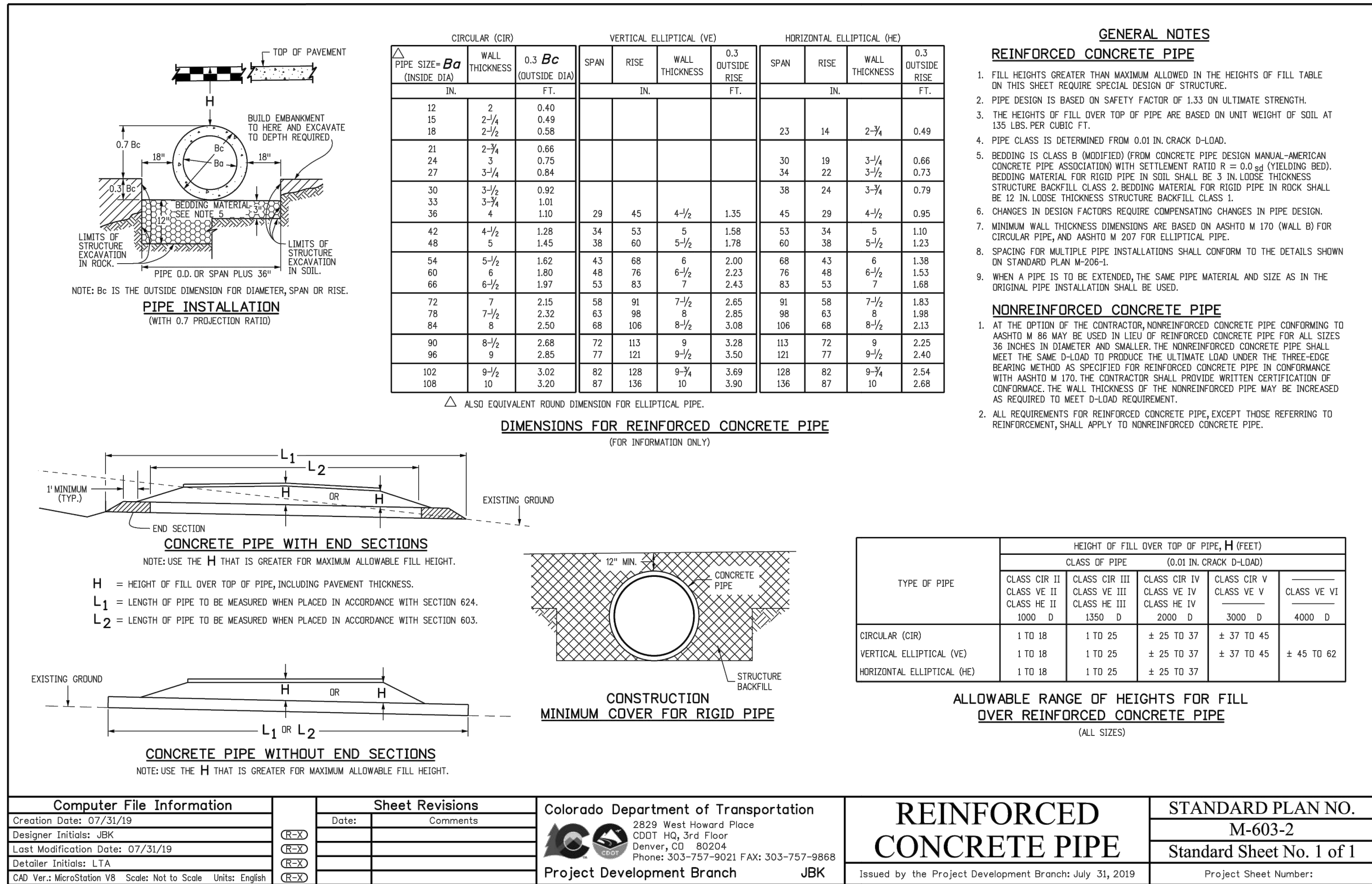
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MARK	BAR # OR SIZE	O.C. SPACING	TYPE	ALL INLETS		INLETS: H ≤ 5 FT.				INLETS: H > 5 FT.			
				L = 5 FT.		L = 10 FT.		L = 15 FT.		L = 10 FT.		L = 15 FT.	
				NO. REQ'D.	LENGTH	NO. REQ'D.	LENGTH	NO. REQ'D.	LENGTH	NO. REQ'D.	LENGTH	NO. REQ'D.	LENGTH
401	4	11"	II	15	*	21	*	28	*	11	*	11	*
402	4	11"	II	7	*	13	*	18	*	7	*	7	*
403	4	9"	II	*	4'-0"	*	4'-0"	*	4'-0"	*	4'-0"	*	4'-0"
405	4	6"	VI	11	6'-10"	21	6'-10"	31	6'-10"	11	6'-10"	11	6'-10"
406	4	6"	VIII	7	8'-10"	7	13'-10"	7	18'-10"	7	8'-10"	7	8'-10"
407	4	9"	II	*	5'-10"	*	10'-10"	*	15'-10"	*	5'-10"	*	5'-10"
408	4	12"	II	3	8'-10"	3	11'-10"	3	18'-10"	3	11'-10"	3	18'-10"
409	4	8"	II	6	5'-10"	6	10'-10"	6	15'-10"	6	10'-10"	6	15'-10"
410	4	11"	VII	*	*	*	*	*	*	3	5	3	5
411	4	11"	II	*	*	*	*	*	3	5'-2"	3	10'-2"	
412	4	11"	II	*	*	*	*	*	3	2'-0"	3	2'-0"	
413	4	9"	II	*	*	*	*	*	7	10'-10"	7	15'-10"	
501	5	5 1/2"	IV	11	3'-4"	22	3'-4"	33	3'-4"	22	3'-4"	33	3'-4"
502	5	5 1/2"	III	5	3'-6"	16	3'-6"	27	3'-6"	11	11'-5"	17	11'-5"
503	5	5 1/2"	II	5	3'-6"	16	3'-6"	27	3'-6"	6	3'-6"	6	3'-6"
504	5	5 1/2"	IX	*	*	*	*	*	*	*	*	*	
601	6	2 1/2"	V	2	8'-10"	2	8'-10"	2	8'-10"	2	8'-10"	2	8'-10"
818.5				1	5'-10"	1	10'-10"	1	15'-10"	1	10'-10"	1	15'-10"

2 BARS, 1 ROD

4 BARS, 3 RODS

8 BARS, 5 RODS

4 BARS, 3 RODS

8 BARS, 5 RODS

* VARIABLE REFER TO TABLE TWO.

* INCLUDE #4, 18 IN. BARS (SEMI LAYOUT).

REGULAR INLETS

DROP BOX INLETS

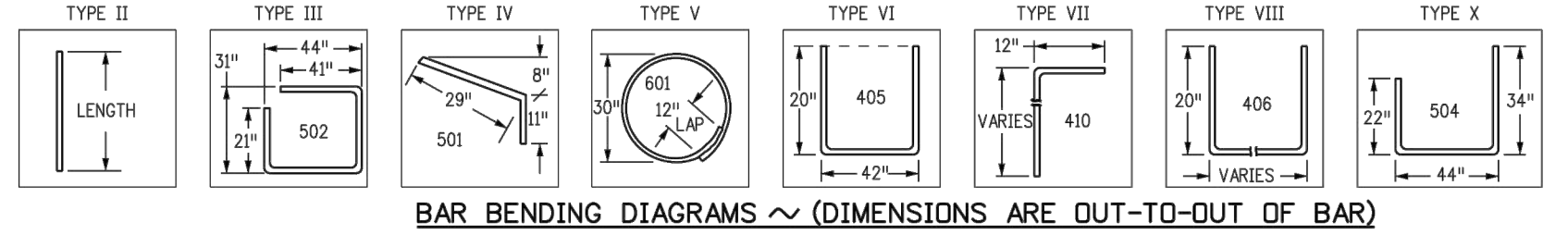
TABLE ONE ~ BAR LIST FOR CURB INLETS, TYPE "R"

H"	LENGTH	NO. REQ'D.		L = 5 FT.		L = 10 FT.		L = 15 FT.	
		REGULAR	DROP BOX	CONC. CUL. STEEL		CONC. CUL. STEEL		CONC. CUL. STEEL	
				403	407	403	407	403	407
3'-0"	2'-8"	10	7	3.2	285	5.3	497	7.4	706
3'-6"	3'-2"	10	7	3.4	305	5.7	528	7.9	747
4'-0"	3'-8"	12	9	3.7	326	6.0	559	8.4	786
4'-6"	4'-2"	12	9	3.9	334	6.4	571	8.8	803
5'-0"	4'-8"	14	11	4.1	354	6.7	602	9.3	844
5'-6"	5'-2"	16	13	4.4	375	7.0	627	9.7	850
6'-0"	5'-8"	16	13	4.6	382	7.2	636	9.9	860
6'-6"	6'-2"	18	15	4.8	402	7.4	637	10.1	880
7'-0"	6'-8"	20	17	5.0	423	7.6	654	10.3	897
7'-6"	7'-2"	20	17	5.3	430	7.8	664	10.5	907
8'-0"	7'-8"	22	19	5.5	451	8.0	684	10.7	927
8'-6"	8'-2"	24	21	5.7	471	8.2	702	10.9	944
9'-0"	8'-8"	24	21	6.0	479	8.4	717	11.1	954
9'-6"	9'-2"	26	23	6.2	499	8.6	732	11.3	974
10'-0"	9'-8"	28	25	6.4	520	8.8	749	11.4	992
10'-6"	10'-2"	28	25	6.7	527	9.1	759	11.7	1001
11'-0"	10'-8"	30	27	6.9	547	9.3	779	11.9	1022

NOTES: FOR L=5 FT., L=10 FT., AND L=15 FT.
 REGULAR INLETS: TOTAL QUANTITIES NEEDED ARE OUTSIDE THE HEAVY BLACK LINE.
 DROP BOX INLETS: TOTAL QUANTITIES NEEDED ARE INSIDE THE HEAVY BLACK LINE.
 STEEL WEIGHTS DO NOT INCLUDE STRUCTURAL STEEL CHANNEL.

TABLE TWO ~ BARS AND QUANTITIES VARIABLE WITH "H"

SEE TOWN OF PARKER MANHOLE COVER DETAIL ON THIS SHEET FOR LID DETAIL



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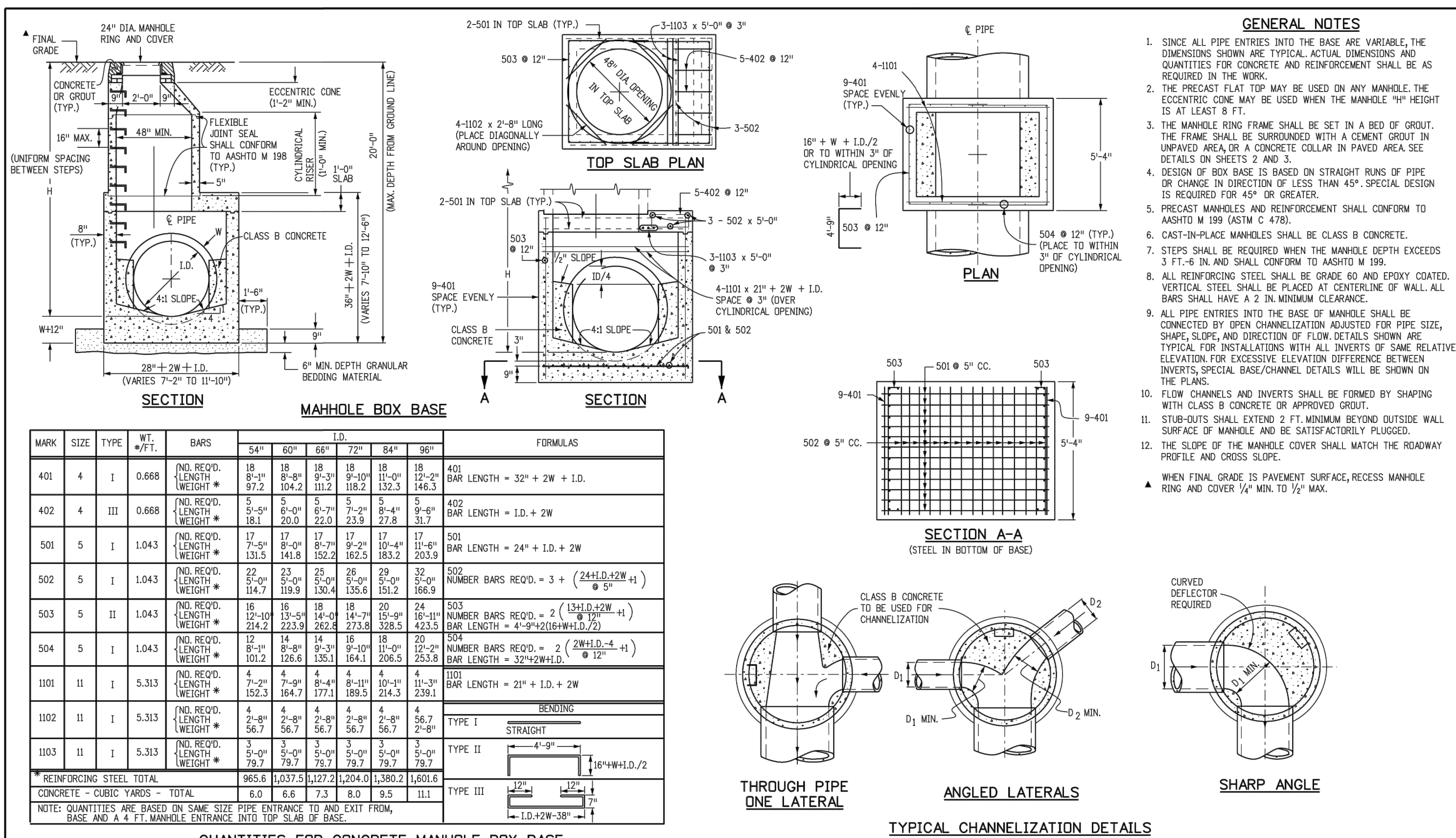
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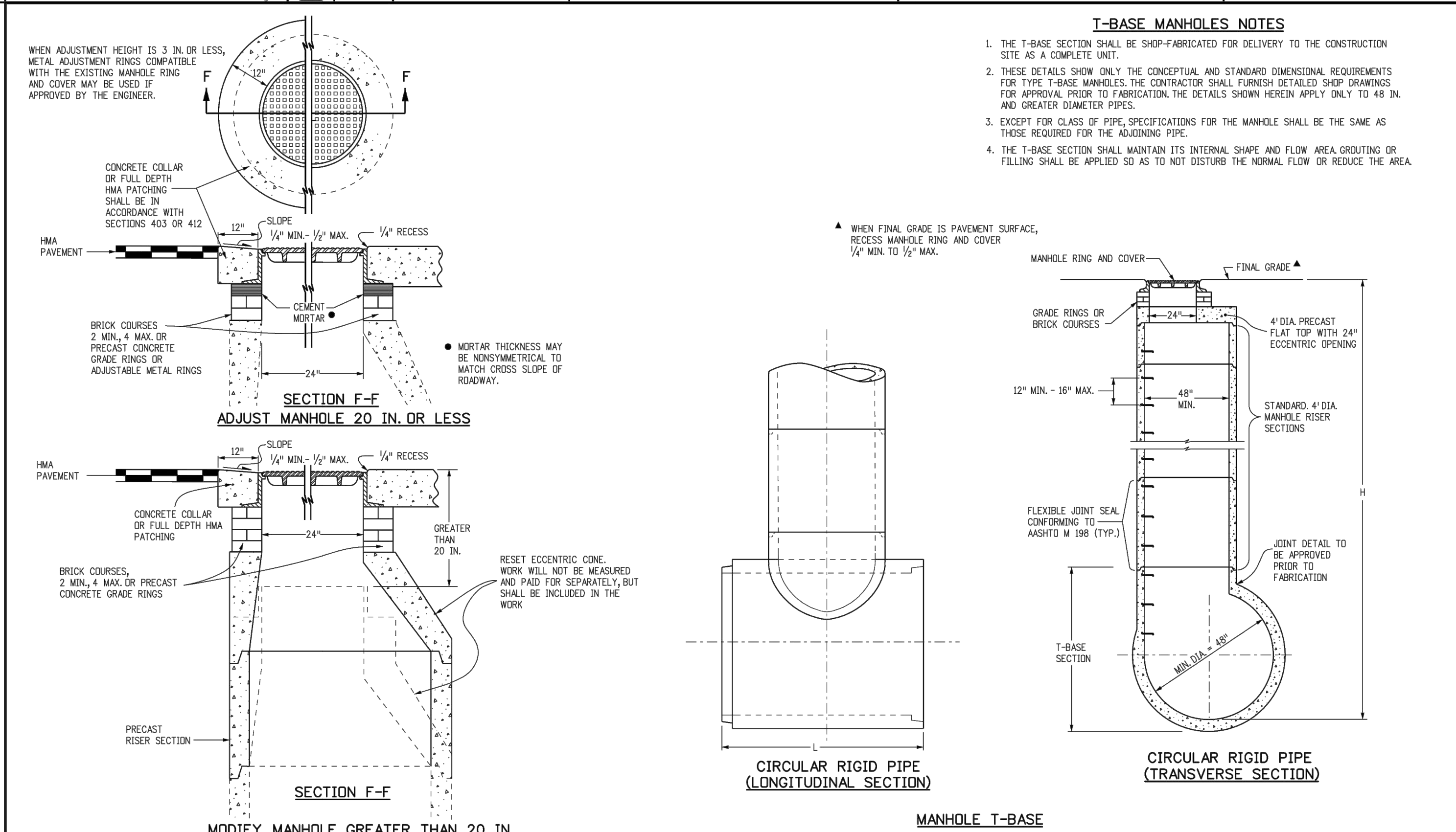
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Rev. # Description Date
1 TOWN COMMENTS 1/22/21
2 TOWN COMMENTS 3/22/21

STORM SEWER DETAILS

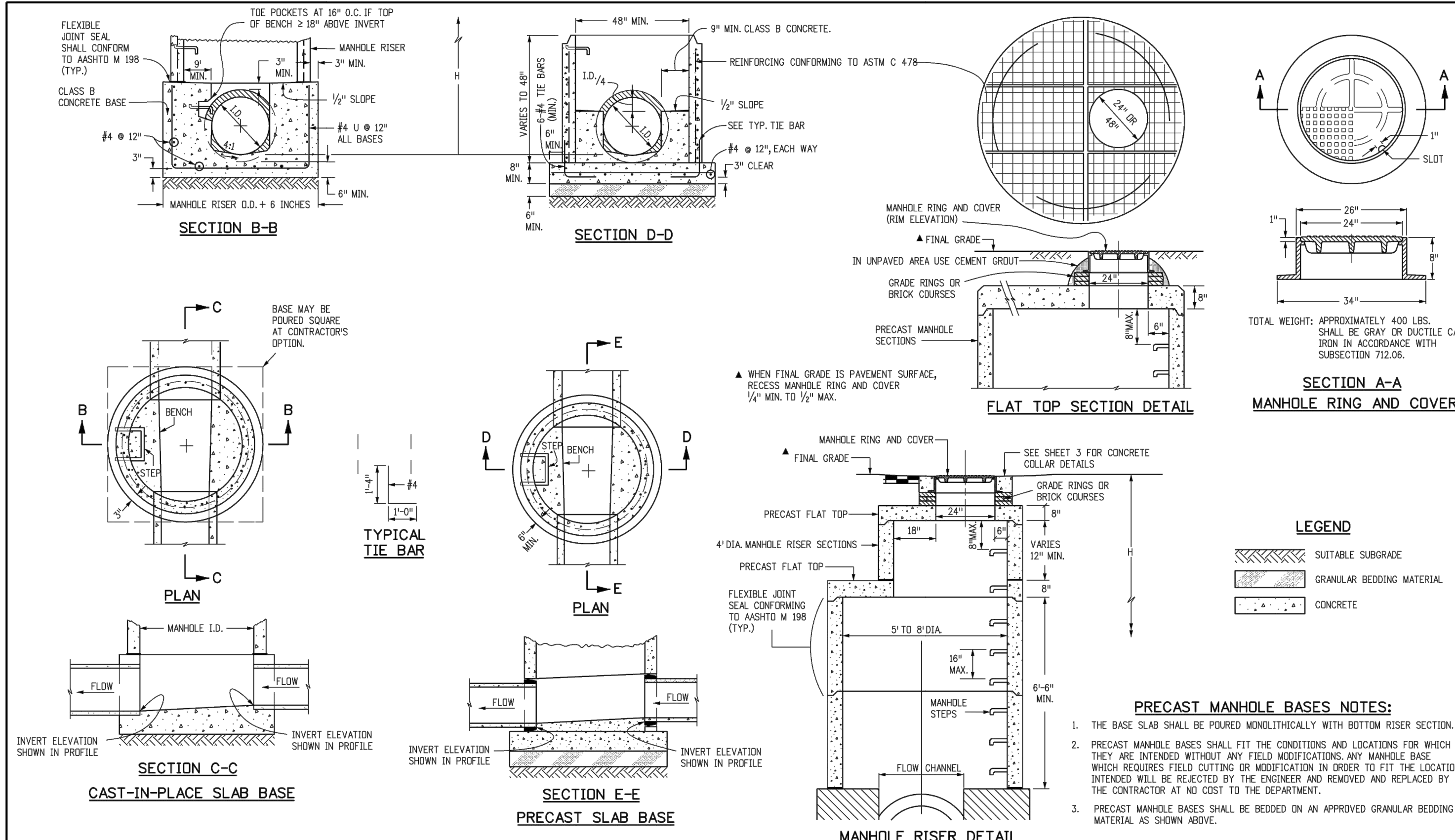
C4.2



Computer File Information				Sheet Revisions		Colorado Department of Transportation 4201 East Arkansas Avenue Denver, Colorado 80222 Phone: (303) 757-9083 Fax: (303) 757-9820	MANHOLES	STANDARD PLAN NO.	
Creation Date: 07/04/12	Initials: DD			Date:	Comments			M-604-20	
Last Modification Date: 07/04/12	Initials: LTA							Sheet No. 1 of 3	
Full Path: www.coloradodo.info/business/designsupport									
Drawing File Name: M06040200103.dgn									



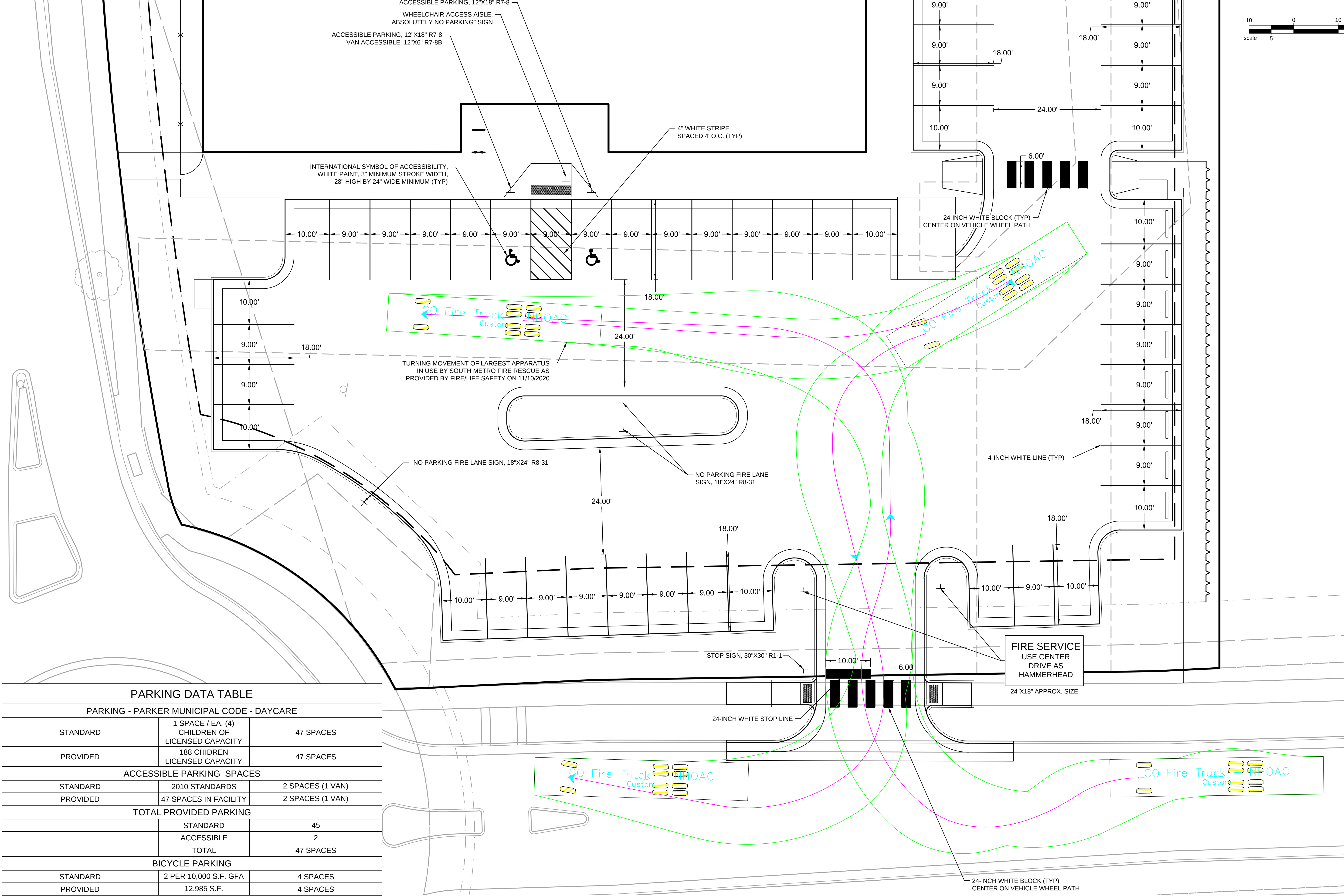
Computer File Information				Sheet Revisions		Colorado Department of Transportation 4201 East Arkansas Avenue Denver, Colorado 80222 Phone: (303) 757-9083 Fax: (303) 757-9820	MANHOLES	STANDARD PLAN NO.	
Creation Date: 07/04/12	Initials: DD			Date:	Comments			M-604-20	
Last Modification Date: 07/04/12	Initials: LTA							Sheet No. 3 of 3	
Full Path: www.coloradodo.info/business/designsupport									
Drawing File Name: 6040200303.dgn									



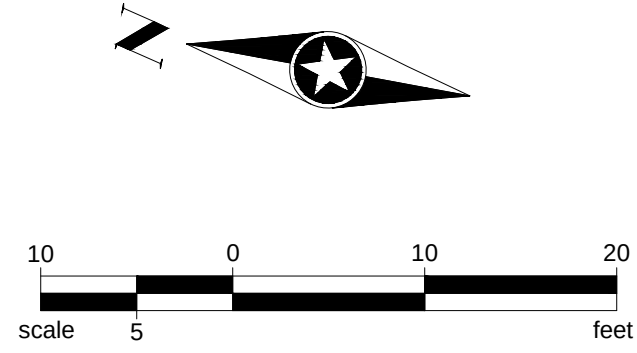
Computer File Information				Sheet Revisions		Colorado Department of Transportation 4201 East Arkansas Avenue Denver, Colorado 80222 Phone: (303) 757-9083 Fax: (303) 757-9820	MANHOLES	STANDARD PLAN NO.	
Creation Date: 07/04/12	Initials: DD			Date:	Comments			M-604-20	
Last Modification Date: 07/04/12	Initials: LTA							Sheet No. 2 of 3	
Full Path: www.coloradodo.info/business/designsupport									
Drawing File Name: M06040200203.dgn									

Save: 3/23/2021 7:21 AM appop Plot: 3/23/2021 7:31 AM X:\KOWN\NHOAC\1562175-final.dgn\151-drawings\10-Civil\dwg\sheet\Site Plans\CS_NHOAC156217_Signage Plan.dwg

LEGEND	
	PROPERTY LINE
	LOT LINES
	UTILITY EASEMENT
	PROPOSED UTILITY EASEMENT
	PERMANENT EASEMENT
	SETBACK LINE
	WATER MAIN
	GAS MAIN
	SANITARY SEWER
	STORM SEWER



PARKING DATA TABLE		
PARKING - PARKER MUNICIPAL CODE - DAYCARE		
STANDARD	1 SPACE / EA. (4) CHILDREN OF LICENSED CAPACITY	47 SPACES
PROVIDED	188 CHIDREN LICENSED CAPACITY	47 SPACES
ACCESSIBLE PARKING SPACES		
STANDARD	2010 STANDARDS	2 SPACES (1 VAN)
PROVIDED	47 SPACES IN FACILITY	2 SPACES (1 VAN)
TOTAL PROVIDED PARKING		
	STANDARD	45
	ACCESSIBLE	2
	TOTAL	47 SPACES
BICYCLE PARKING		
STANDARD	2 PER 10,000 S.F. GFA	4 SPACES
PROVIDED	12,985 S.F.	4 SPACES





Building a Better World
for All of Us®

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CONSTRUCTION

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New Horizon Academy
**NEW HORIZON ACADEMY -
DOUGLAS 234 FILING, NO. 6**
PARKER, CO

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SEH Project
Checked By
Drawn By

NHOAC 156217
DBH
AMP

Project Status
TOWN REVIEW
TOWN REVIEW
TOWN REVIEW

Issue Date
8/26/2020
1/22/2021
3/22/2021

Revision Issue		
Rev. #	Description	Date
1	TOWN COMMENTS	1/22/21
2	TOWN COMMENTS	3/22/21

SIGNAGE PLAN

2

C5.0

Appendix B

Hydraulic Computations

B-1 – UDFCD Worksheets for the Rational Method

B-2 – UDFCD Worksheets for Inlets and Pipes

B-3 – UDFCD Worksheets for BMPs

B-4 – StormCAD System Analysis 5- and 100-year Event

Calculation of Peak Runoff using Rational Method									
--	--	--	--	--	--	--	--	--	--

Version 2.00 released May 2017

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Some of the cost are for estimated future costs such as:

Computed $t_c = t_i + t_r$

$$\text{Regional } t_c = (26 - 17i) + \frac{L_t}{60(14i + 9)\sqrt{S_t}}$$

$$\text{Selected } t_c = \max\{t_{\text{minimum}}, \min(\text{Computed } t_c, \text{Regional } t_c)\}$$

Select UDFCD location for NOAA Atlas 14 Rainfall Depths from the pulldown list OR enter your own depths obtained from the NOAA website (click this link)

	a	b	c	$I(in/hr) = \frac{a * P_1}{(b + t_c)^c}$
Rainfall Intensity Equation Coefficients =	28.50	10.00	0.786	

$$Q(cfs) = CIA$$

[illegible]

Area-Weighted Runoff Coefficient Calculations

Version 2.00 released May 2017

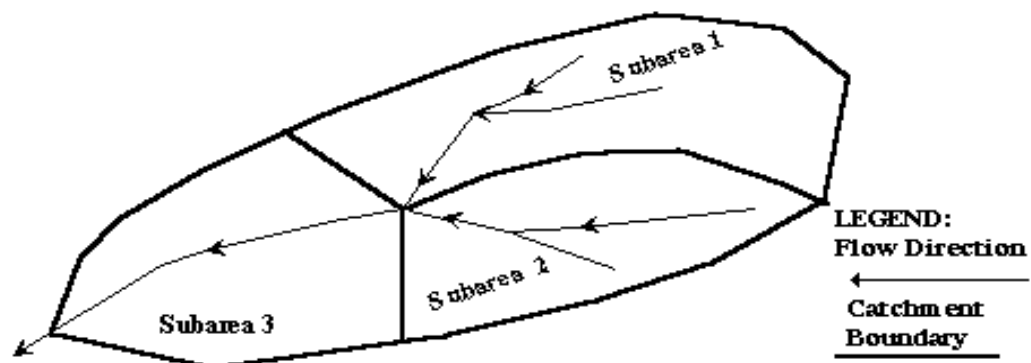
Designer: Alex Popp

Company: SEH Inc

Date: 3/12/2021

Project: New Horizon Academy

Location: Parker, CO



Subcatchment Name
EX-1 SWALE

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See sheet "Design Info" for imperviousness-based runoff coefficient values.

Sub-Area ID	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness	Runoff Coefficient, C						
				2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
SIDEWALK	0.01	B	90.0	0.74	0.76	0.78	0.81	0.83	0.84	0.87
LAWN	0.11	B	2.0	0.01	0.01	0.07	0.26	0.34	0.44	0.54
Total Area (ac)	0.12	Area-Weighted C		0.07	0.07	0.13	0.31	0.38	0.47	0.57
		Area-Weighted Override C		0.07	0.07	0.13	0.31	0.38	0.47	0.57

Area-Weighted Runoff Coefficient Calculations

Version 2.00 released May 2017

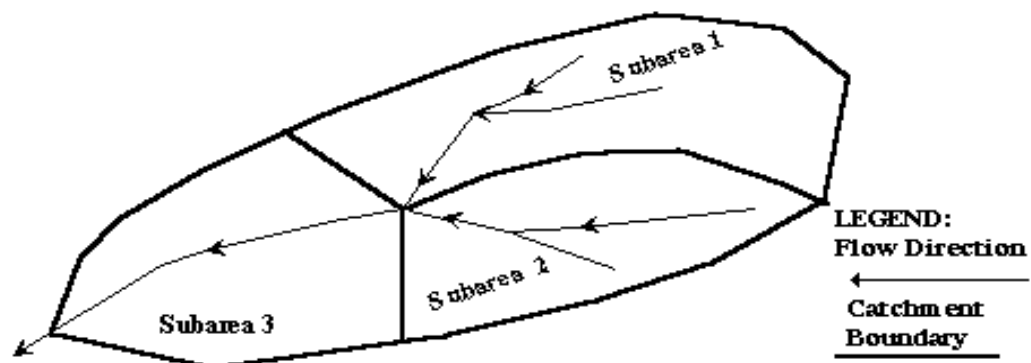
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Project: New Horizon Academy

Location: Parker, CO



Subcatchment Name
ST-1

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See sheet "Design Info" for imperviousness-based runoff coefficient values.

Sub-Area ID	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness	Runoff Coefficient, C						
				2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
DRIVE	0.10	B	90.0	0.74	0.76	0.78	0.81	0.83	0.84	0.87
LAWN	0.08	B	2.0	0.01	0.01	0.07	0.26	0.34	0.44	0.54
Total Area (ac)	0.18	Area-Weighted C		0.41	0.43	0.47	0.57	0.61	0.66	0.72
		Area-Weighted Override C		0.41	0.43	0.47	0.57	0.61	0.66	0.72

Area-Weighted Runoff Coefficient Calculations

Version 2.00 released May 2017

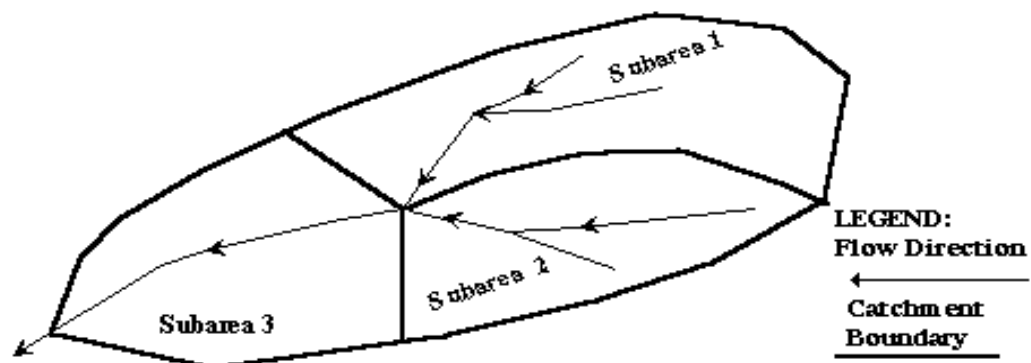
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Company: SEH Inc

Date: 3/12/2021

Project: New Horizon Academy

Location: Parker, CO



Subcatchment Name
ST-2

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See sheet "Design Info" for imperviousness-based runoff coefficient values.

Sub-Area ID	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness	Runoff Coefficient, C						
				2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
DRIVE	0.22	B	90.0	0.74	0.76	0.78	0.81	0.83	0.84	0.87
LAWN	0.04	B	2.0	0.01	0.01	0.07	0.26	0.34	0.44	0.54
Total Area (ac)	0.27	Area-Weighted C		0.62	0.64	0.67	0.72	0.75	0.78	0.81
		Area-Weighted Override C		0.62	0.64	0.67	0.72	0.75	0.78	0.81

Area-Weighted Runoff Coefficient Calculations

Version 2.00 released May 2017

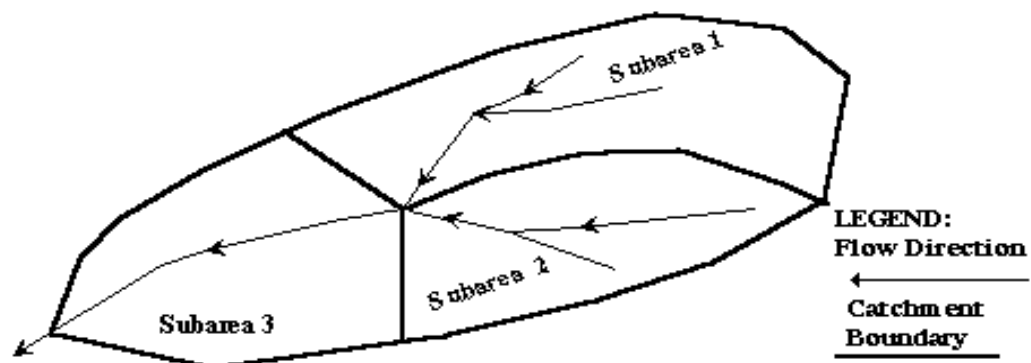
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Company: SEH Inc

Date: 3/12/2021

Project: New Horizon Academy

Location: Parker, CO



Subcatchment Name
ST-4

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See sheet "Design Info" for imperviousness-based runoff coefficient values.

Sub-Area ID	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness	Runoff Coefficient, C						
				2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
DRIVE	0.31	D	90.0	0.74	0.77	0.79	0.82	0.84	0.85	0.87
LAWN	0.12	D	2.0	0.01	0.05	0.15	0.33	0.40	0.49	0.59
Total Area (ac)	0.43	Area-Weighted C		0.54	0.57	0.61	0.69	0.72	0.75	0.79
		Area-Weighted Override C		0.54	0.57	0.61	0.69	0.72	0.75	0.79

Area-Weighted Runoff Coefficient Calculations

Version 2.00 released May 2017

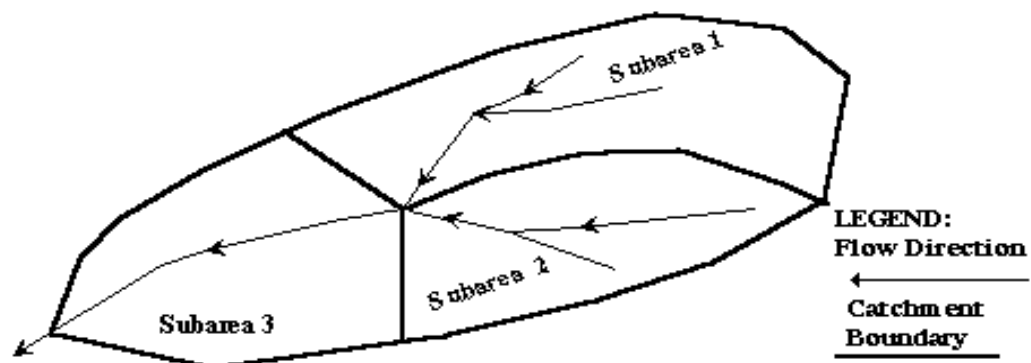
Designer: Alex Popp

Company: SEH Inc

Date: 3/12/2021

Project: New Horizon Academy

Location: Parker, CO



Subcatchment Name

OFFSITE NORTH

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Cells of this color are for calculated results based on overrides

See sheet "Design Info" for imperviousness-based runoff coefficient values.

Sub-Area ID	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness	Runoff Coefficient, C						
				2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
SIDEWALK	0.02	D	90.0	0.74	0.77	0.79	0.82	0.84	0.85	0.87
LAWN	0.03	D	2.0	0.01	0.05	0.15	0.33	0.40	0.49	0.59
Total Area (ac)	0.05	Area-Weighted C		0.30	0.34	0.41	0.53	0.58	0.64	0.71
		Area-Weighted Override C		0.30	0.34	0.41	0.53	0.58	0.64	0.71

Area-Weighted Runoff Coefficient Calculations

Version 2.00 released May 2017

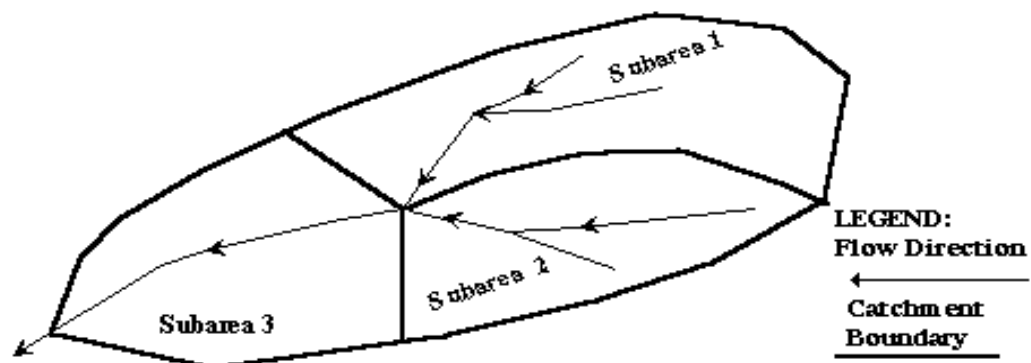
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Company: SEH Inc

Date: 3/12/2021

Project: New Horizon Academy

Location: Parker, CO



Subcatchment Name

OFFSITE SOUTH

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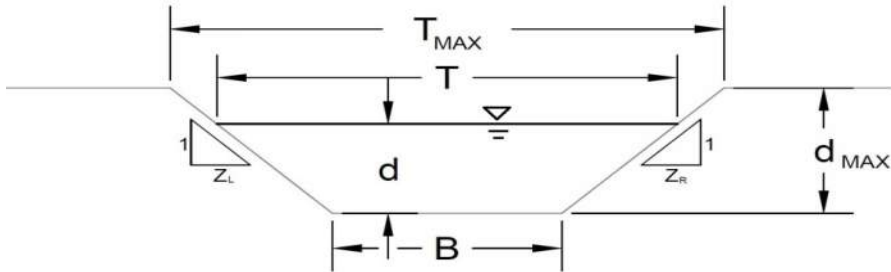
See sheet "Design Info" for imperviousness-based runoff coefficient values.

Sub-Area ID	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness	Runoff Coefficient, C						
				2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
SIDEWALK	0.00	D	90.0	0.74	0.77	0.79	0.82	0.84	0.85	0.87
LAWN	0.00	D	2.0	0.01	0.05	0.15	0.33	0.40	0.49	0.59
Total Area (ac)	0.01	Area-Weighted C		0.34	0.37	0.44	0.55	0.60	0.65	0.72
		Area-Weighted Override C		0.34	0.37	0.44	0.55	0.60	0.65	0.72

AREA INLET IN A SWALE

New Horizon Academy, Parker, CO

EX-1



This worksheet uses the NRCS
vegetal retardance method to
determine Manning's n.

For more information see
Section 7.2.3 of the USDCM.

Analysis of Trapezoidal Grass-Lined Channel Using SCS Method

NRCS Vegetal Retardance (A, B, C, D, or E)

Manning's n (Leave cell D16 blank to manually enter an n value)

Channel Invert Slope

Bottom Width

Left Side Slope

Right Side Slope

Check one of the following soil types:

Soil Type:	Max. Velocity (V_{MAX})	Max Froude No. (F_{MAX})
Non-Cohesive	5.0 fps	0.60
Cohesive	7.0 fps	0.80
Paved	N/A	N/A

A, B, C, D or E

D
n = see details below
S_o = 0.0600 ft/ft
B = 0.00 ft
Z1 = 0.30 ft/ft
Z2 = 0.30 ft/ft

Choose One:

- ☒ Non-Cohesive
☐ Cohesive
☐ Paved

Max. Allowable Top Width of Channel for Minor & Major Storm

Max. Allowable Water Depth in Channel for Minor & Major Storm

	Minor Storm	Major Storm	
T_{MAX} =	13.00	13.00	feet
d_{MAX} =	1.88	1.88	feet

Maximum Channel Capacity Based On Allowable Top Width

Max. Allowable Top Width

Water Depth

Flow Area

Wetted Perimeter

Hydraulic Radius

Manning's n based on NRCS Vegetal Retardance

Flow Velocity

Velocity-Depth Product

Hydraulic Depth

Froude Number

Max. Flow Based On Allowable Top Width

	Minor Storm	Major Storm	
T_{MAX} =	13.00	13.00	ft
d =	21.67	21.67	ft
A =	140.83	140.83	sq ft
P =	45.24	45.24	ft
R =	3.11	3.11	ft
n =	0.030	0.030	
V =	25.94	25.94	fps
VR =	80.74	80.74	ft ² /s
D =	10.83	10.83	ft
Fr =	1.39	1.39	
Q_T =	3,652.8	3,652.8	cfs

Maximum Channel Capacity Based On Allowable Water Depth

Max. Allowable Water Depth

Top Width

Flow Area

Wetted Perimeter

Hydraulic Radius

Manning's n based on NRCS Vegetal Retardance

Flow Velocity

Velocity-Depth Product

Hydraulic Depth

Froude Number

Max. Flow Based On Allowable Water Depth

	Minor Storm	Major Storm	
d_{MAX} =	1.88	1.88	feet
T =	1.13	1.13	feet
A =	1.06	1.06	square feet
P =	3.93	3.93	feet
R =	0.27	0.27	feet
n =	0.075	0.075	
V =	2.03	2.03	fps
VR =	0.55	0.55	ft ² /s
D =	0.94	0.94	feet
Fr =	0.37	0.37	
Q_d =	2.2	2.2	cfs

Allowable Channel Capacity Based On Channel Geometry

MINOR STORM Allowable Capacity is based on Depth Criterion

MAJOR STORM Allowable Capacity is based on Depth Criterion

	Minor Storm	Major Storm	
Q_{allow} =	2.2	2.2	cfs
d_{allow} =	1.88	1.88	ft

Water Depth in Channel Based On Design Peak Flow

Design Peak Flow

Water Depth

Top Width

Flow Area

Wetted Perimeter

Hydraulic Radius

Manning's n based on NRCS Vegetal Retardance

Flow Velocity

Velocity-Depth Product

Hydraulic Depth

Froude Number

Q_o =	0.2	1.2	cfs
d =	1.07	1.64	feet
T =	0.64	0.99	feet
A =	0.34	0.81	square feet
P =	2.24	3.43	feet
R =	0.15	0.24	feet
n =	0.200	0.094	
V =	0.52	1.48	fps
VR =	0.08	0.35	ft ² /s
D =	0.54	0.82	feet
Fr =	0.13	0.29	

Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

Major storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

AREA INLET IN A SWALE

New Horizon Academy, Parker, CO

EX-1

Inlet Design Information (Input)

Type of Inlet

Inlet Type =

Angle of Inclined Grate (must be <= 30 degrees)

Width of Grate

Length of Grate

Open Area Ratio

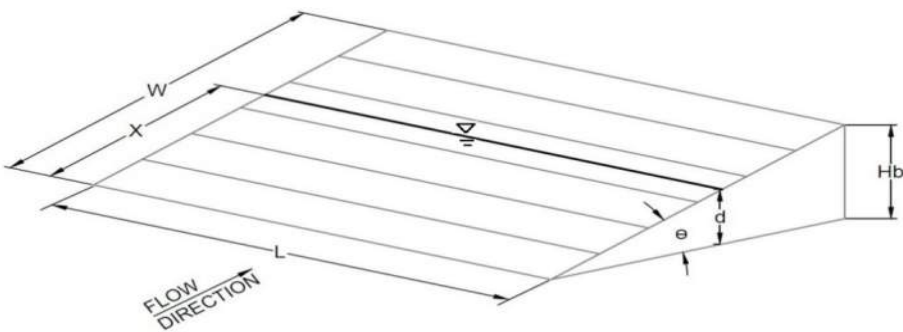
Height of Inclined Grate

Clogging Factor

Grate Discharge Coefficient

Orifice Coefficient

Weir Coefficient



θ =	0.00	degrees
W =	3.00	feet
L =	3.00	feet
A_{RATIO} =	0.70	
H_B =	0.00	feet
C_f =	0.50	
C_d =	0.96	
C_o =	0.64	
C_w =	2.05	

Water Depth at Inlet (for depressed inlets, 1 foot is added for depression)

	MINOR	MAJOR
d =	1.07	1.64

Grate Capacity as a Weir

Submerged Side Weir Length

Inclined Side Weir Flow

Base Weir Flow

Interception without Clogging

Interception with Clogging

X =	3.00	3.00	feet
Q_{ws} =	11.9	22.7	cfs
Q_{wb} =	17.1	32.4	cfs
Q_{wi} =	41.0	77.8	cfs
Q_{wa} =	20.5	38.9	cfs

Grate Capacity as an Orifice

Interception without Clogging

Interception with Clogging

Q_{oi} =	33.5	41.4	cfs
Q_{oa} =	16.7	20.7	cfs

Total Inlet Interception Capacity (assumes clogged condition)

Q_a =	16.7	20.7	cfs
Bypassed Flow, Q_b =	0.0	0.0	cfs
Capture Percentage = $Q_a/Q_o = C\%$	100	100	%

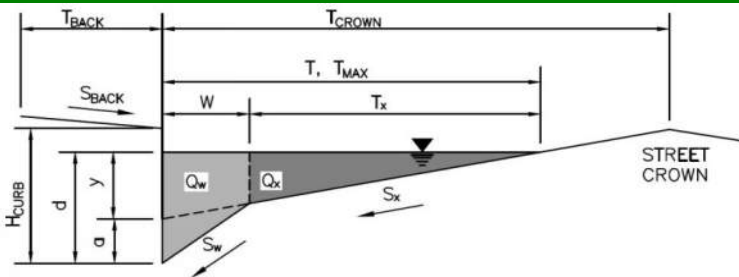
Warning 01: Sideslope steepness exceeds USDCM Volume I recommendation.

Warning 02: Depth (d) exceeds USDCM Volume I recommendation.

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

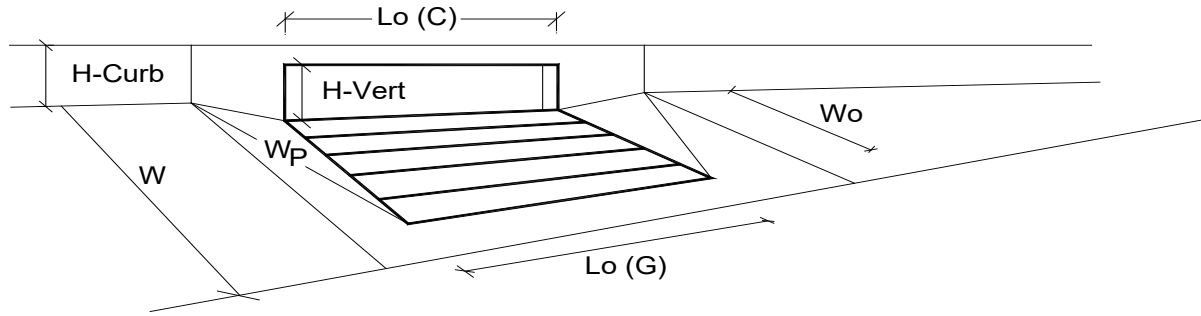
Project: New Horizon Academy, Parker, CO
Inlet ID: ST-1



Gutter Geometry (Enter data in the blue cells)	
Maximum Allowable Width for Spread Behind Curb	$T_{BACK} = 0.0$ ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	$S_{BACK} = 0.000$ ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	$n_{BACK} = 0.012$
Height of Curb at Gutter Flow Line	$H_{CURB} = 6.00$ inches
Distance from Curb Face to Street Crown	$T_{CROWN} = 18.0$ ft
Gutter Width	$W = 2.00$ ft
Street Transverse Slope	$S_x = 0.030$ ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	$S_w = 0.083$ ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	$S_o = 0.000$ ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	$n_{STREET} = 0.012$
Max. Allowable Spread for Minor & Major Storm	$T_{MAX} = 18.0$ ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	$d_{MAX} = 6.0$ inches
Check boxes are not applicable in SUMP conditions	☐ ☐
MINOR STORM Allowable Capacity is based on Depth Criterion	Minor Storm
MAJOR STORM Allowable Capacity is based on Depth Criterion	Major Storm
	$Q_{allow} = SUMP$ cfs

INLET IN A SUMP OR SAG LOCATION

Version 4.06 Released August 2018

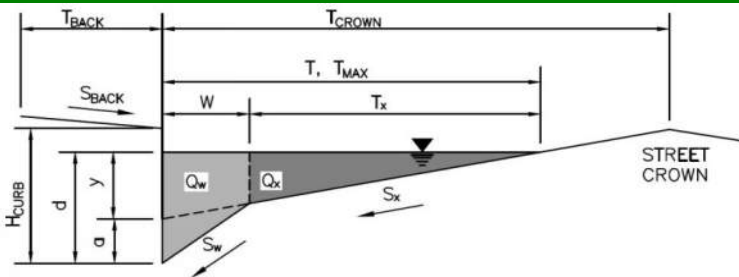


Design Information (Input)		MINOR		MAJOR	
Type of Inlet	CDOT Type R Curb Opening	Type = CDOT Type R Curb Opening			
Local Depression (additional to continuous gutter depression 'a' from above)		a_{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)		No =	1	1	
Water Depth at Flowline (outside of local depression)		Ponding Depth =	6.0	6.0	inches
Grate Information		MINOR		MAJOR	
Length of a Unit Grate		$L_o (G)$ =	N/A	N/A	feet
Width of a Unit Grate		W_o =	N/A	N/A	feet
Area Opening Ratio for a Grate (typical values 0.15-0.90)		A_{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)		$C_f (G)$ =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)		$C_w (G)$ =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)		$C_o (G)$ =	N/A	N/A	
Curb Opening Information		MINOR		MAJOR	
Length of a Unit Curb Opening		$L_o (C)$ =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches		H_{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches		H_{throat} =	6.00	6.00	inches
Angle of Throat (see USDCM Figure ST-5)		Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)		W_p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)		$C_f (C)$ =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)		$C_w (C)$ =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)		$C_o (C)$ =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR		MAJOR	
Depth for Grate Midwidth		d_{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation		d_{Curb} =	0.33	0.33	ft
Combination Inlet Performance Reduction Factor for Long Inlets		$RF_{Combination}$ =	0.77	0.77	
Curb Opening Performance Reduction Factor for Long Inlets		RF_{Curb} =	1.00	1.00	
Grated Inlet Performance Reduction Factor for Long Inlets		RF_{Grate} =	N/A	N/A	
Total Inlet Interception Capacity (assumes clogged condition)		MINOR		MAJOR	
		Q_a =	5.4	5.4	cfs
Inlet Capacity IS GOOD for Minor and Major Storms(>Q PEAK)		$Q_{PEAK REQUIRED}$ =	0.4	1.1	cfs

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

Project: New Horizon Academy, Parker, CO
Inlet ID: ST-2



Gutter Geometry (Enter data in the blue cells)

Maximum Allowable Width for Spread Behind Curb
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)
Height of Curb at Gutter Flow Line
Distance from Curb Face to Street Crown
Gutter Width
Street Transverse Slope
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)
Street Longitudinal Slope - Enter 0 for sump condition
Manning's Roughness for Street Section (typically between 0.012 and 0.020)

T_{BACK} = 0.0 ft
 S_{BACK} = 0.000 ft/ft
 n_{BACK} = 0.012

H_{CURB} = 6.00 inches
 T_{CROWN} = 18.0 ft
 W = 2.00 ft
 S_x = 0.025 ft/ft
 S_w = 0.083 ft/ft
 S_o = 0.000 ft/ft
 n_{STREET} = 0.012

Max. Allowable Spread for Minor & Major Storm
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm
Check boxes are not applicable in SUMP conditions

	Minor Storm	Major Storm	
T_{MAX}	18.0	18.0	ft
d_{MAX}	6.0	6.0	inches
	☐	☐	

MINOR STORM Allowable Capacity is based on Depth Criterion
MAJOR STORM Allowable Capacity is based on Depth Criterion

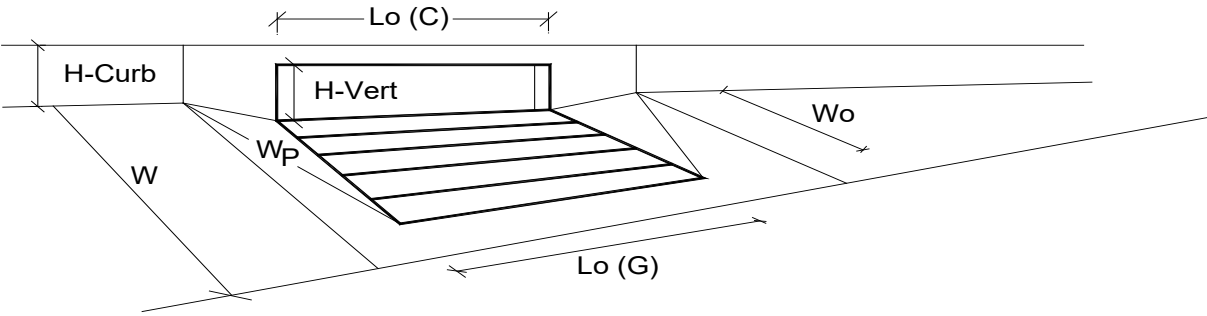
Q_{allow} =

Minor Storm	Major Storm
SUMP	SUMP

 cfs

INLET IN A SUMP OR SAG LOCATION

Version 4.06 Released August 2018

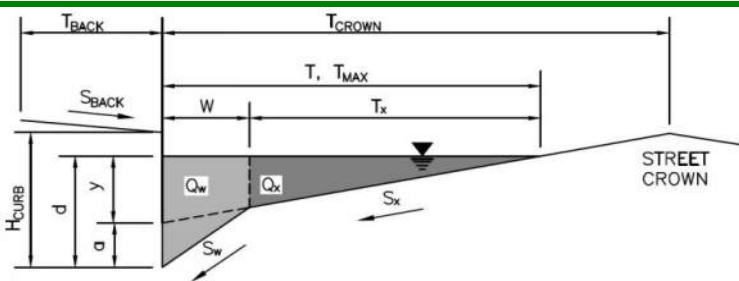


Design Information (Input)		MINOR		MAJOR	
Type of Inlet	CDOT Type R Curb Opening	Type = CDOT Type R Curb Opening			
Local Depression (additional to continuous gutter depression 'a' from above)		a _{local} =	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)		No =	1	1	
Water Depth at Flowline (outside of local depression)		Ponding Depth =	6.0	6.0	inches
Grate Information		MINOR		MAJOR	
Length of a Unit Grate		L _o (G) =	N/A	N/A	feet
Width of a Unit Grate		W _o =	N/A	N/A	feet
Area Opening Ratio for a Grate (typical values 0.15-0.90)		A _{ratio} =	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)		C _f (G) =	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)		C _w (G) =	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)		C _o (G) =	N/A	N/A	
Curb Opening Information		MINOR		MAJOR	
Length of a Unit Curb Opening		L _o (C) =	5.00	5.00	feet
Height of Vertical Curb Opening in Inches		H _{vert} =	6.00	6.00	inches
Height of Curb Orifice Throat in Inches		H _{throat} =	6.00	6.00	inches
Angle of Throat (see USDCM Figure ST-5)		Theta =	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)		W _p =	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)		C _f (C) =	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)		C _w (C) =	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)		C _o (C) =	0.67	0.67	
Low Head Performance Reduction (Calculated)		MINOR		MAJOR	
Depth for Grate Midwidth		d _{Grate} =	N/A	N/A	ft
Depth for Curb Opening Weir Equation		d _{Curb} =	0.33	0.33	ft
Combination Inlet Performance Reduction Factor for Long Inlets		RF _{Combination} =	0.77	0.77	
Curb Opening Performance Reduction Factor for Long Inlets		RF _{Curb} =	1.00	1.00	
Grated Inlet Performance Reduction Factor for Long Inlets		RF _{Grate} =	N/A	N/A	
Total Inlet Interception Capacity (assumes clogged condition)		MINOR		MAJOR	
Inlet Capacity IS GOOD for Minor and Major Storms(>Q PEAK)		Q _a =	5.4	5.4	cfs
		Q _{PEAK REQUIRED} =	0.8	1.9	cfs

ALLOWABLE CAPACITY FOR ONE-HALF OF STREET (Minor & Major Storm)

(Based on Regulated Criteria for Maximum Allowable Flow Depth and Spread)

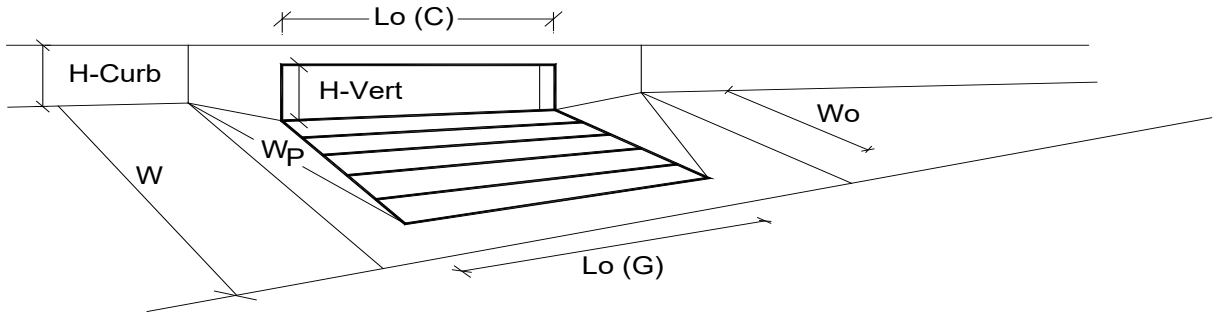
Project: New Horizon Academy, Parker, CO
Inlet ID: ST-4



Gutter Geometry (Enter data in the blue cells)		
Maximum Allowable Width for Spread Behind Curb	$T_{BACK} =$	0.0 ft
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	$S_{BACK} =$	0.000 ft/ft
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	$n_{BACK} =$	0.012
Height of Curb at Gutter Flow Line	$H_{CURB} =$	6.00 inches
Distance from Curb Face to Street Crown	$T_{CROWN} =$	18.0 ft
Gutter Width	$W =$	2.00 ft
Street Transverse Slope	$S_x =$	0.025 ft/ft
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	$S_w =$	0.083 ft/ft
Street Longitudinal Slope - Enter 0 for sump condition	$S_o =$	0.000 ft/ft
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	$n_{STREET} =$	0.012
Max. Allowable Spread for Minor & Major Storm	$T_{MAX} =$	Minor Storm: 18.0 ft, Major Storm: 18.0 ft
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	$d_{MAX} =$	Minor Storm: 6.0 inches, Major Storm: 6.0 inches
Check boxes are not applicable in SUMP conditions		☐ ☐
MINOR STORM Allowable Capacity is based on Depth Criterion		
MAJOR STORM Allowable Capacity is based on Depth Criterion		
	$Q_{allow} =$	Minor Storm: SUMP, Major Storm: SUMP cfs

INLET IN A SUMP OR SAG LOCATION

Version 4.06 Released August 2018



Design Information (Input)

Type of Inlet
Local Depression (additional to continuous gutter depression 'a' from above)
Number of Unit Inlets (Grate or Curb Opening)
Water Depth at Flowline (outside of local depression)

Grate Information

Length of a Unit Grate
Width of a Unit Grate
Area Opening Ratio for a Grate (typical values 0.15-0.90)
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)
Grate Weir Coefficient (typical value 2.15 - 3.60)
Grate Orifice Coefficient (typical value 0.60 - 0.80)

Curb Opening Information

Length of a Unit Curb Opening
Height of Vertical Curb Opening in Inches
Height of Curb Orifice Throat in Inches
Angle of Throat (see USDCM Figure ST-5)
Side Width for Depression Pan (typically the gutter width of 2 feet)
Clogging Factor for a Single Curb Opening (typical value 0.10)
Curb Opening Weir Coefficient (typical value 2.3-3.7)
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)

Low Head Performance Reduction (Calculated)

Depth for Grate Midwidth
Depth for Curb Opening Weir Equation
Combination Inlet Performance Reduction Factor for Long Inlets
Curb Opening Performance Reduction Factor for Long Inlets
Grated Inlet Performance Reduction Factor for Long Inlets

Total Inlet Interception Capacity (assumes clogged condition)

Inlet Capacity IS GOOD for Minor and Major Storms(>Q PEAK)

	MINOR	MAJOR	
Type =	CDOT Type R Curb Opening		
a _{local} =	3.00	3.00	inches
No =	1	1	
Ponding Depth =	6.0	6.0	inches
	MINOR	MAJOR	☐ Override Depths
L _o (G) =	N/A	N/A	feet
W _o =	N/A	N/A	feet
A _{ratio} =	N/A	N/A	
C _f (G) =	N/A	N/A	
C _w (G) =	N/A	N/A	
C _o (G) =	N/A	N/A	
	MINOR	MAJOR	
L _o (C) =	5.00	5.00	feet
H _{vert} =	6.00	6.00	inches
H _{throat} =	6.00	6.00	inches
Theta =	63.40	63.40	degrees
W _p =	2.00	2.00	feet
C _f (C) =	0.10	0.10	
C _w (C) =	3.60	3.60	
C _o (C) =	0.67	0.67	
	MINOR	MAJOR	
d _{Grate} =	N/A	N/A	ft
d _{Curb} =	0.33	0.33	ft
RF _{Combination} =	0.77	0.77	
RF _{Curb} =	1.00	1.00	
RF _{Grate} =	N/A	N/A	
	MINOR	MAJOR	
Q _a =	5.4	5.4	cfs
Q _{PEAK REQUIRED} =	1.2	2.9	cfs

Design Procedure Form: Grass Swale (GS)

UD-BMP (Version 3.07, March 2018)

Sheet 1 of 1

Designer: Alex Popp
Company: SEH Inc.
Date: March 12, 2021
Project: New Horizon Academy
Location: Parker, CO

1. Design Discharge for 2-Year Return Period	$Q_2 = $ 0.02 cfs
2. Hydraulic Residence Time A) : Length of Grass Swale B) Calculated Residence Time (based on design velocity below)	$L_S = $ 260.0 ft $T_{HR} = $ 11.0 minutes
3. Longitudinal Slope (vertical distance per unit horizontal) A) Available Slope (based on site constraints) B) Design Slope	$S_{avail} = $ 0.020 ft / ft $S_D = $ 0.020 ft / ft
4. Swale Geometry A) Channel Side Slopes ($Z = 4$ min., horiz. distance per unit vertical) B) Bottom Width of Swale (enter 0 for triangular section)	$Z = $ 3.00 ft / ft TOO STEEP (< 4) $W_B = $ 0.00 ft
5. Vegetation A) Type of Planting (seed vs. sod, affects vegetal retardance factor)	Choose One _____ ☒ Grass From Seed ☐ Grass From Sod
6. Design Velocity (0.867 ft / s maximum for desirable 5-minute residence time)	$V_2 = $ 0.39 ft / s
7. Design Flow Depth (1 foot maximum) A) Flow Area B) Top Width of Swale C) Froude Number (0.50 maximum) D) Hydraulic Radius E) Velocity-Hydraulic Radius Product for Vegetal Retardance F) Manning's n (based on SCS vegetal retardance curve E for seeded grass) G) Cumulative Height of Grade Control Structures Required	$D_2 = $ 0.13 ft $A_2 = $ 0.1 sq ft $W_T = $ 0.8 ft $F = $ 0.27 $R_H = $ 0.06 $VR = $ 0.02 $n = $ 0.080 $H_D = $ 0.00 ft
8. Underdrain (Is an underdrain necessary?)	Choose One _____ ☐ YES ☒ NO
9. Soil Preparation (Describe soil amendment)	
10. Irrigation	Choose One _____ ☐ Temporary ☒ Permanent

Notes: _____

Design Procedure Form: Grass Swale (GS)

100-YEAR STORM EVENT

UD-BMP (Version 3.07, March 2018)

Sheet 1 of 1

Designer: Alex Popp

Company: SEH Inc.

Date: March 12, 2021

Project: New Horizon Academy

Location: Parker, CO

1. Design Discharge for 100-Year Return Period

$Q_{100} = 0.40$ cfs

2. Hydraulic Residence Time

A) : Length of Grass Swale

$L_S = 260.0$ ft

B) Calculated Residence Time (based on design velocity below)

$T_{HR} = 4.4$ minutes

3. Longitudinal Slope (vertical distance per unit horizontal)

A) Available Slope (based on site constraints)

$S_{avail} = 0.020$ ft / ft

B) Design Slope

$S_D = 0.020$ ft / ft

4. Swale Geometry

A) Channel Side Slopes ($Z = 4$ min., horiz. distance per unit vertical)

$Z = 3.00$ ft / ft

TOO STEEP (< 4)

B) Bottom Width of Swale (enter 0 for triangular section)

$W_B = 0.00$ ft

5. Vegetation

A) Type of Planting (seed vs. sod, affects vegetal retardance factor)

Choose One
☒ Grass From Seed ☐ Grass From Sod

6. Design Velocity (0.867 ft / s maximum for desirable 5-minute residence time)

$V = 0.97$ ft / s

7. Design Flow Depth (1 foot maximum)

A) Flow Area

$D = 0.37$ ft

B) Top Width of Swale

$A_2 = 0.4$ sq ft

C) Froude Number (0.50 maximum)

$W_T = 2.2$ ft

D) Hydraulic Radius

$F = 0.40$

E) Velocity-Hydraulic Radius Product for Vegetal Retardance

$R_H = 0.18$

F) Manning's n (based on SCS vegetal retardance curve E for seeded grass)

$VR = 0.17$

G) Cumulative Height of Grade Control Structures Required

$n = 0.066$

$H_D = 0.00$ ft

8. Underdrain
(Is an underdrain necessary?)

Choose One
☐ YES ☒ NO

9. Soil Preparation
(Describe soil amendment)

10. Irrigation

Choose One
☐ Temporary ☒ Permanent

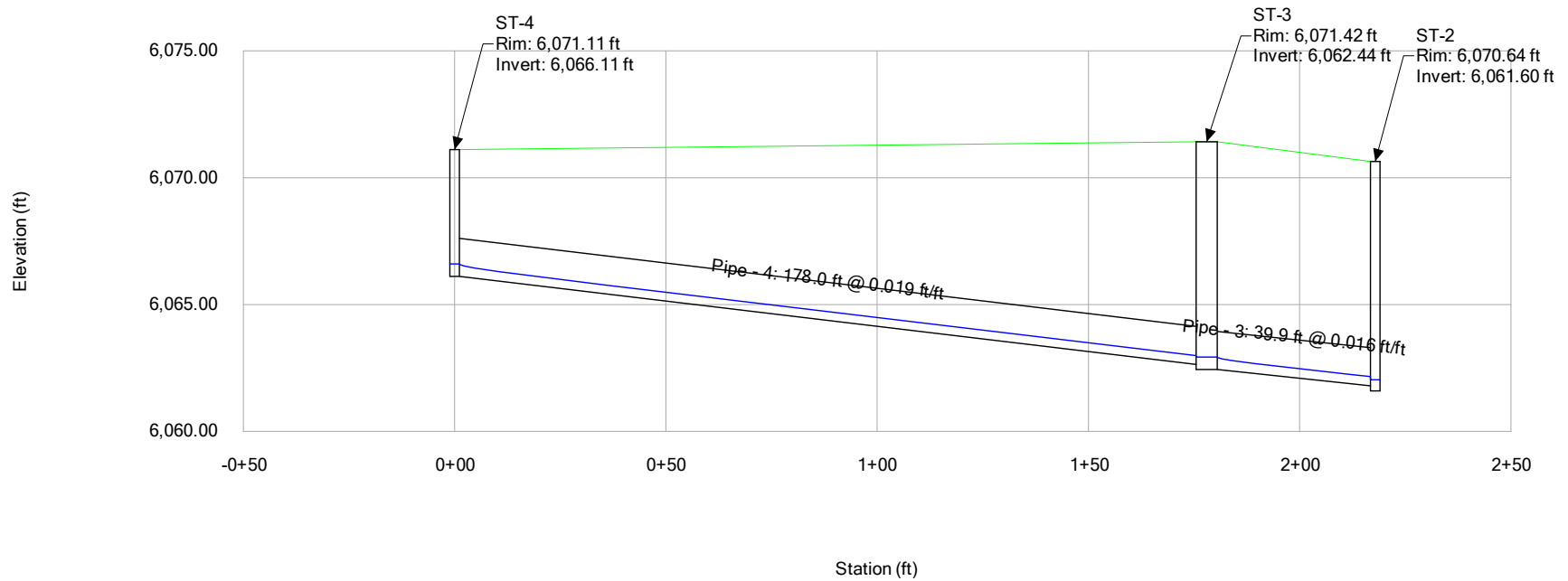
Notes:

FlexTable: Conduit Table

ID	Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Section Type	Diameter (in)
48	ST-4	6,066.11	ST-3	6,062.64	178.0	0.019	Circle	18.0
59	EX-1	6,059.00	O-1	6,055.92	32.9	0.094	Circle	18.0
64	ST-2	6,061.60	ST-1	6,061.00	58.0	0.010	Circle	18.0
65	ST-1	6,060.80	EX-1	6,059.00	191.2	0.009	Circle	18.0
68	ST-3	6,062.44	ST-2	6,061.80	39.9	0.016	Circle	18.0
Manning's n	Flow (cfs)	Velocity (ft/s)	Depth (Out) (ft)	Capacity (Full Flow) (cfs)	Flow / Capacity (Design) (%)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	
0.013	1.70	5.54	0.34	14.67	11.6	6,066.60	6,062.98	
0.013	0.73	7.48	0.16	32.16	2.3	6,059.32	6,056.08	
0.013	1.36	4.15	0.36	10.68	12.7	6,062.04	6,061.36	
0.013	0.91	3.57	0.30	10.19	8.9	6,061.16	6,059.30	
0.013	1.70	5.17	0.36	13.30	12.8	6,062.93	6,062.16	

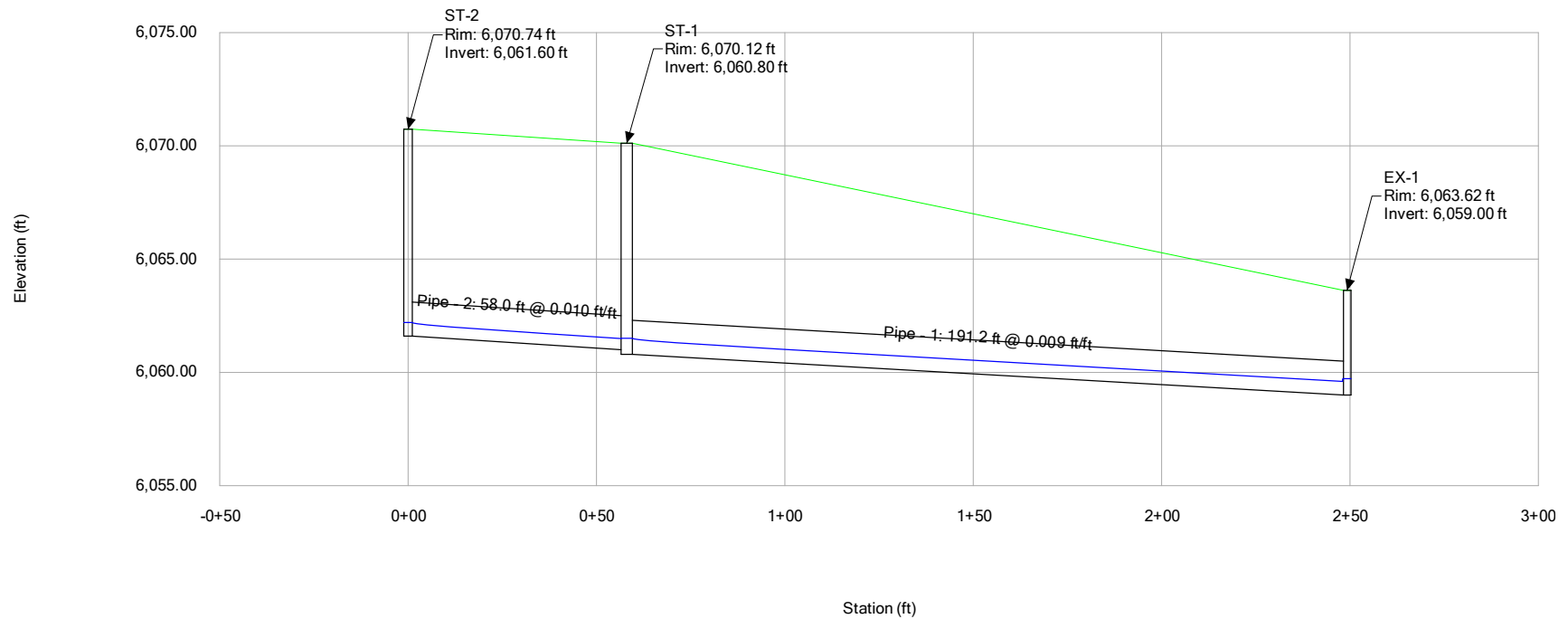
Profile Report

Engineering Profile - Profile - 1 (NHOAC156217 StormCAD 5-Year.stsw)



Profile Report

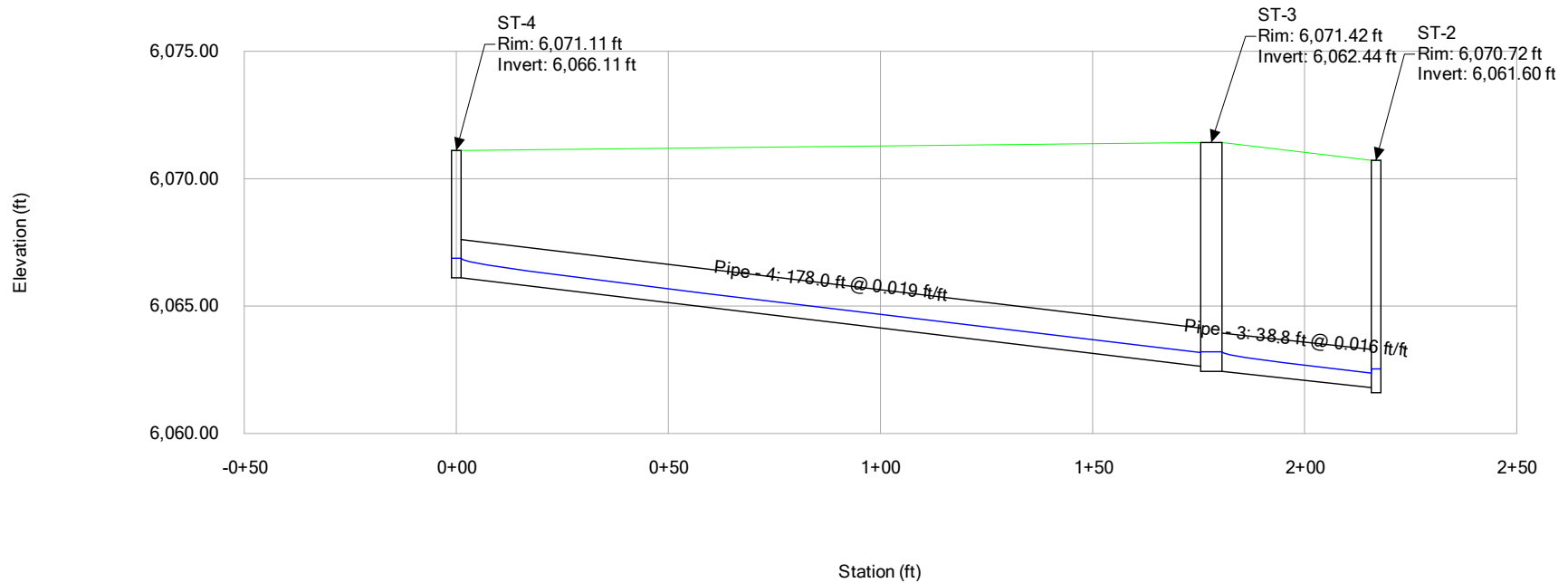
Engineering Profile - Profile - 2 (NHOAC156217 StormCAD 5-Year.stsw)



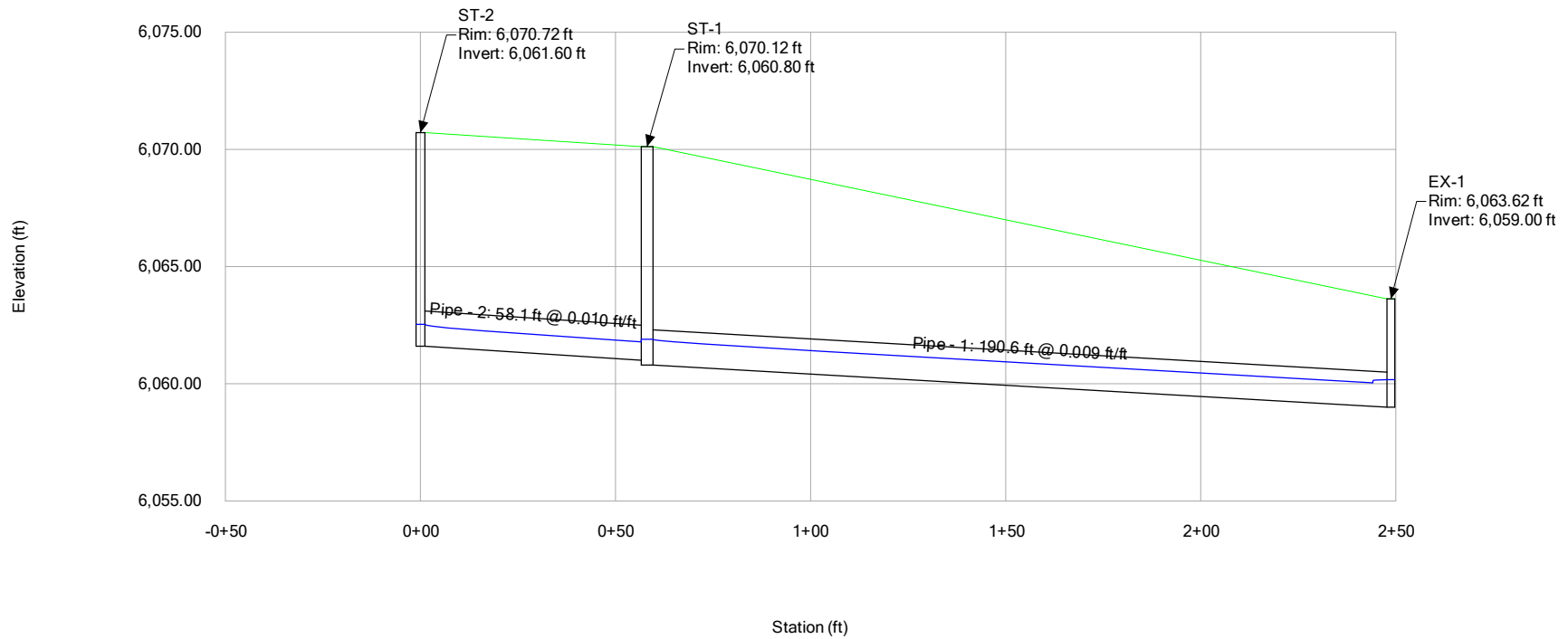
FlexTable: Conduit Table

ID	Start Node	Invert (Start) (ft)	Stop Node	Invert (Stop) (ft)	Length (Scaled) (ft)	Slope (Calculated) (ft/ft)	Section Type	Diameter (in)
48	ST-4	6,066.11	ST-3	6,062.64	178.0	0.019	Circle	18.0
59	EX-1	6,059.00	O-1	6,055.92	32.9	0.094	Circle	18.0
64	ST-2	6,061.60	ST-1	6,061.00	58.1	0.010	Circle	18.0
65	ST-1	6,060.80	EX-1	6,059.00	190.6	0.009	Circle	18.0
68	ST-3	6,062.44	ST-2	6,061.80	38.8	0.016	Circle	18.0
Manning's n	Flow (cfs)	Velocity (ft/s)	Depth (Out) (ft)	Capacity (Full Flow) (cfs)	Flow / Capacity (Design) (%)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	
0.013	4.00	7.07	0.54	14.67	27.3	6,066.88	6,063.18	
0.013	9.24	15.72	0.61	32.16	28.7	6,060.18	6,056.53	
0.013	5.85	6.18	0.79	10.67	54.8	6,062.53	6,061.79	
0.013	8.04	6.40	1.18	10.21	78.8	6,061.90	6,060.18	
0.013	4.00	6.65	0.57	13.48	29.7	6,063.21	6,062.37	

Profile Report **Engineering Profile - Profile - 1 (NHOAC156217 StormCAD 100-Year.stsw)**



Profile Report **Engineering Profile - Profile - 2 (NHOAC156217 StormCAD 100-Year.stsw)**



Appendix C

Historic Plans

C-1 – Excerpts from Final Drainage Report for the Parker 234 Subdivision

C-2 – Chambers and Hess Filing No. 1 Drainage Map

C-3 – Design Flows for EX-1 (A-12)

The developed site can be divided into four (4) major basins, being Basins A, B, C and D. Each of these major basins contains a proposed water quality/ detention pond area.

Basin A

Basin A is comprised of most of the eastern portion of the project, including the proposed commercial site, and contributes runoff to Pond A. This facility is located in the northeasterly corner of the site, adjacent to and immediately west of the southerly extension of Jordan Rd. Pond A will discharge easterly, under Jordan Road, to the existing drainageway to Cherry Creek. Basin A is subdivided into thirteen sub-basins, and generally corresponds to historic basins C-3, C-4, C-5 and a portion of historic basin C-2. Runoff within Basin A flows overland to the internal storm drainage system, and ultimately in Pond A.

The proposed detention pond for Basin A serves only the residential portion. At such time that the commercial lot is developed, a separate detention and water quality facility will need to be provided to service that area.

Pond A is located in Tract B. Storm water will be directed to this pond via overland flow and Storm Drain Line B. The pond is sized to hold the required volume for 100-year detention and water quality per the Town of Parker and UDFCD requirements. This needed 100 year volume is 2.72. The water quality volume required is 0.68 Ac.ft. The total volume, including 100-year detention and WQCV, is accumulated by elevation 5992.1. The weir structure will have a top elevation at 5995.0 and a bottom equal to the 100-year water surface elevation, 5992.1. A 1.42' diameter orifice plate will be installed on the outlet pipe to control to pond's allowable release rate, 36.39 cfs. An outlet pipe is sized to convey 100% of the tributary developed 100-year flow, $Q_{100yr.} = 191.70$ cfs. Storm events that exceed the volume provided in Pond A will be routed through the pond by the emergency overflow spillway. Both pond exits, the spillway and the storm drain, will be protected by riprap.

During initial and interim construction phases, Pond A will have a temporary riser pipe, rather than the permanent outlet structure to allow it to function as a sediment control pond. Also, the spillway will not be cut out of the earth berm that surrounds the pond, so that the pond can have additional volume, which may be needed during the construction operations that typically produce additional sediment. During the final stages of construction, the pond will be modified to include the earth-weir. The perforated outlet pipe will be replaced by the concrete outlet structure.

Basin B

Basin B includes the north-central portion of the project, and directs runoff to detention Pond B. This facility is located adjacent to and immediately southwesterly of the proposed alignment of Chambers Road. Discharge of the computed release rate from Pond B will travel under Chambers Road via a 42" RCP (Storm Line U), into the existing natural drainage-way at that location. The Antelope Heights project, immediately downstream from this discharge point, is coordinating engineering design to accommodate this historic runoff rate. Eventually, this pipe will be connected to the



Project Name/Number Park 234 / 01804102
Prepared By MEF Date 2-3-03
Sheet 1 of 5

Telephone Log
Meeting Record
Calculations
Other

☐ Divide Basin A
☐ into Commercial
☒ & Residential

Commercial Property
developed

12.56 Ac. 95% impervious

$$\rightarrow \text{detention vol.}_{100} = 1.852 \text{ Ac. ft.}$$

$$\text{WQ CV} = \frac{0.562 \text{ Ac. ft.}}{2.414 \text{ Ac. ft.}}$$

Residential Property

30.25 Ac. 56% impervious

$$\rightarrow \text{detention vol.}_{100} = 2.718 \text{ Ac. ft.}$$

$$\text{WQ CV} = \frac{0.676 \text{ Ac. ft.}}{3.394 \text{ Ac. ft.}}$$

$$= 147,843 \text{ ft}^3$$



CONSULTANTS, INC.
CIVIL ENGINEERING
LAND SURVEYING
LAND PLANNING

Project Name/Number Parker 234 / 01804102
Date: 2-3-03
Sheet 2 of 5

Telephone Log
Meeting Record
Calculations
Other

☐
☐
☒
☐

POND A

Area = 30.25 Ac.

of homes = 130 avg. sq. footage = 1660 ft², 2 story

Area (park) = 1.71 Ac.

Area (lots) = 15.46 Ac.

Area (roads) = 11.19 Ac.

Area (open space) = 4.05 Ac.

$130 / 15.46 = 8.41$ dwellings / Ac. $\rightarrow$ 36% impervious per R0-5

$$\frac{1.71(5\%) + 15.46(36\%) + 11.19(100\%) + 4.05(0\%)}{30.25 \text{ Ac.}} = 56\%$$

Detention (V=KA)

DETENTION REQUIREMENTS - ONSITE BASINS

Subdivision: Parker 234
Location: Parker

Project Name: Parker 234
Project No. 1804102
By: MEF
Checked By: KAL
Date: 01/24/03

SOIL GROUPS B/C

Q10R= 0.23
Q100R= 0.85

Note: Allowable release rates for type C soil groups is greater than type B soils, however, rates for type B soil was used for conservatism.

BASIN/LAND USE	DRAINAGE AREA (AC.)	% IMPERV.	V ₁₀ (AC. FT.)	V ₁₀₀ (AC. FT.)	Q _{10R} (CFS)	Q _{100R} (CFS)
Basin A	30.25	56	1.552	2.718	6.96	25.71
Basin B	59.88	54	2.958	5.193	13.77	50.90
Basin C	8.50	25	0.186	0.337	1.96	7.23
Basin D	34.41	26	0.785	1.423	7.91	29.25
Commerical Property	12.6	95	1.110	1.852	2.89	10.68
SUM			6.590	11.524	33.5	123.8

DETENTION PONDING FORMULAS:

$$V_{100} = K_{100} \times A$$

$$K_{100} = (1.78I - 0.002I^2 - 3.56)/1000$$

$$V_{10} = K_{10} \times A$$

$$K_{10} = (0.95I - 1.90)/1000$$

$$Q_{100R} = Q_{100R} \times A$$

$$Q_{10R} = Q_{10R} \times A$$

Design Procedure Form: Extended Detention Basin (EDB) - Sedimentation Facility

Sheet 1 of 3

Designer: MEF
 Company: CVL Consultants
 Date: January 31, 2003
 Project: Parker 234
 Location: Pond A

1. Basin Storage Volume A) Tributary Area's Imperviousness Ratio ($i = I_a / 100$) B) Contributing Watershed Area (Area) C) Water Quality Capture Volume (WQCV) ($WQCV = 1.0 * (0.91 * I^3 - 1.19 * I^2 + 0.78 * I)$) D) Design Volume: $Vol = (WQCV / 12) * Area * 1.2$	$I_a =$ <u>56.00</u> % $i =$ <u>0.56</u> Area = <u>30.25</u> acres WQCV = <u>0.22</u> watershed inches Vol = <u>0.676</u> acre-feet
2. Outlet Works A) Outlet Type (Check One) B) Depth at Outlet Above Lowest Perforation (H) C) Required Maximum Outlet Area per Row, (A_o) D) Perforation Dimensions (enter one only): i) Circular Perforation Diameter OR ii) 2" Height Rectangular Perforation Width E) Number of Columns (nc, See Table 6a-1 For Maximum) F) Actual Design Outlet Area per Row (A_o) G) Number of Rows (nr) H) Total Outlet Area (A_{ot})	☒ Orifice Plate ☐ Perforated Riser Pipe ☐ Other: _____ H = <u>4.27</u> feet $A_o =$ <u>0.52</u> square inches D = <u>0.813</u> inches, OR W = _____ inches nc = <u>1</u> number $A_o =$ <u>0.52</u> square inches nr = <u>13</u> number $A_{ot} =$ <u>6.65</u> square inches
3. Trash Rack A) Needed Open Area: $A_t = 0.5 * (\text{Figure 7 Value}) * A_{ot}$ B) Type of Outlet Opening (Check One) C) For 2", or Smaller, Round Opening (Ref.: Figure 6a): i) Width of Trash Rack and Concrete Opening (W_{conc}) from Table 6a-1 ii) Height of Trash Rack Screen (H_{TR})	$A_t =$ <u>231</u> square inches ☒ $\leq 2"$ Diameter Round ☐ 2" High Rectangular ☐ Other: _____ $W_{conc} =$ <u>6</u> inches $H_{TR} =$ <u>81</u> inches

Design Procedure Form: Extended Detention Basin (EDB) - Sedimentation Facility

Sheet 2 of 3

Designer: MEF
 Company: CVL Consultants
 Date: January 31, 2003
 Project: Parker 234
 Location: Pond A

iii) Type of Screen (Based on Depth H), Describe if "Other" iv) Screen Opening Slot Dimension, Describe if "Other" v) Spacing of Support Rod (O.C.) Type and Size of Support Rod (Ref.: Table 6a-2) vi) Type and Size of Holding Frame (Ref.: Table 6a-2) D) For 2' High <u>Rectangular Opening</u> (Refer to Figure 6b): i) Width of Rectangular Opening (W) ii) Width of Perforated Plate Opening ($W_{\text{corr}} = W + 12"$) iii) Width of Trashrack Opening (W_{opening}) from Table 6b-1 iv) Height of Trash Rack Screen (H_{TR}) v) Type of Screen (based on depth H) (Describe if "Other") vi) Cross-bar Spacing (Based on Table 6b-1, Klemp TM KPP Grating). Describe if "Other" vii) Minimum Bearing Bar Size (Klemp TM Series, Table 6b-2) (Based on depth of WQCV surcharge)	<u>x</u> S.S. #93 VEE Wire (US Filter) Other: _____ <u>X</u> 0.139" (US Filter) Other: _____ <u>0.75</u> inches #156 VEE 3/8 in. x 1.0 in. flat bar W = _____ inches $W_{\text{corr}} =$ _____ inches $W_{\text{opening}} =$ _____ inches $H_{\text{TR}} =$ _____ inches Klemp TM KPP Series Aluminum Other: _____ _____ inches Other: _____ _____ _____
4. Detention Basin length to width ratio	<u>1.00</u> (L/W)
5 Pre-sedimentation Forebay Basin - Enter design values	
A) Volume (no less than 5% of Design Volume from 1D)	<u>0.062</u> acre-feet
B) Surface Area	<u>0.067</u> acres
C) Connector Pipe Diameter (Size to drain this volume in 5-minutes under inlet control)	<u>6</u> inches
D) Paved/Hard Bottom and Sides	<u>y</u> yes/no

Design Procedure Form: Extended Detention Basin (EDB) - Sedimentation Facility

Sheet 3 of 3

Designer: MEF
 Company: CVL Consultants
 Date: January 31, 2003
 Project: Parker 234
 Location: Pond A

6. Two-Stage Design - See Figure EDB-1 A) Top Stage (Depth $D_{WQ} = 2'$ Minimum) B) Bottom Stage Depth ($D_{BS} = 1.0'$ Minimum, $2.0'$ Maximum) Bottom Stage Storage (no less than 3% of Design Volume (0.02027596032 acre-feet.) C) Micro Pool (Minimum Depth = the Larger of $0.5 \times$ Top Stage Depth (1.3') or 2.5') D) Total Volume: $Vol_{tot} = \text{Storage from 5A} + 6A + 6B$ (Must be $>$ Design Volume in 1D, or 0.675865344 acre-feet.)	$D_{WQ} = 2.60$ feet Storage = <u>0.645</u> acre-feet $D_{BS} = 1.50$ feet Storage = <u>0.031</u> acre-feet Surf. Area = <u>0.021</u> acres Depth = <u>2.50</u> feet Storage = <u>0.024</u> acre-feet Surf. Area = <u>0.010</u> acres $Vol_{tot} = 0.738$ acre-feet
7. Basin Side Slopes (Z, horizontal distance per unit vertical) Minimum Z = 4, Flatter Preferred	Z = <u>4.00</u> (horizontal/vertical)
8. Dam Embankment Side Slopes (Z, horizontal distance) per unit vertical) Minimum Z = 3, Flatter Preferred	Z = <u>4.00</u> (horizontal/vertical)
9. Vegetation (Check the method or describe "Other")	☒ Native Grass ☐ Irrigated Turf Grass ☐ Other: _____

Notes:

Pond Volume (FAA Method)

Subdivision Parker 234
 Location Parker

Project Name: Parker 234
 Project No. 1804102
 By: MEF
 Checked By: KAL
 Date: 1/31/03

Volume= $\frac{1}{3} \times \text{Depth} \times (A+B+(A*B)^{0.5})$

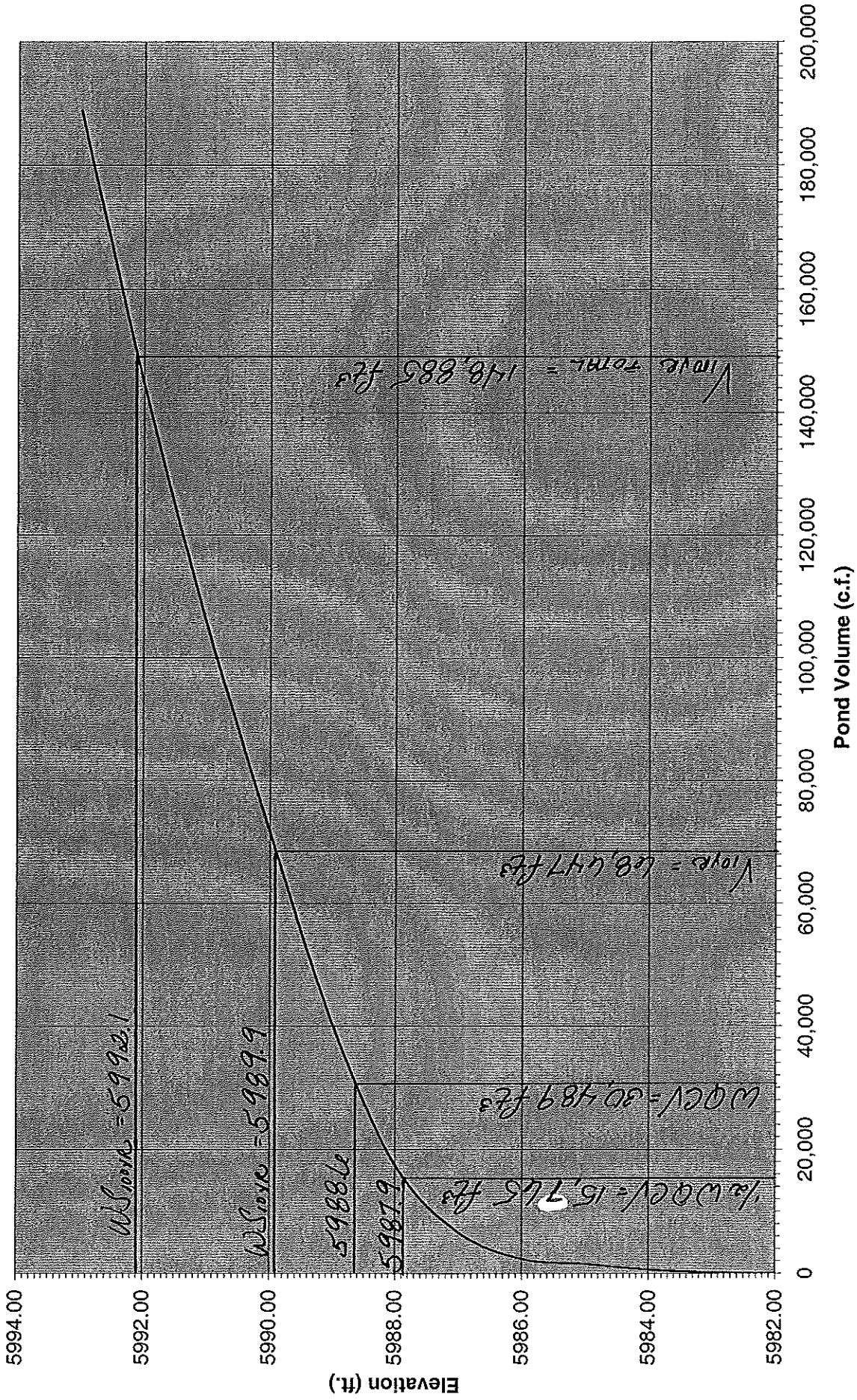
A - Upper Surface

B - Lower Surface

Pond A

Elevation	Surface Area (square feet)	$A+B+(A*B)^{0.5}$	1/3	Depth (feet)	Volume (cubic feet)	Cumulative Volume (cubic feet)
5982.00	0	0.0	0.0	0.00	0	0
5983.00	301	301.0	100.3	1.00	100	100
5984.00	751	1527.4	509.1	1.00	509	609
5984.50	984	2594.6	864.9	0.50	432	1,042
5985.00	1,332	3083.2	1027.7	0.50	514	1,556
5986.00	2,485	2485.0	828.3	1.00	828	2,384
5987.00	6,297	12737.8	4245.9	1.00	4,246	6,630
5988.00	16,152	32534.1	10844.7	1.00	10,845	17,475
5989.00	29,981	68138.8	22712.9	1.00	22,713	40,188
5990.00	32,693	93981.6	31327.2	1.00	31,327	71,515
5991.00	35,507	102271.0	34090.3	1.00	34,090	105,605
5992.00	42,544	116917.6	38972.5	1.00	38,973	144,578
5993.00	46,080	132900.7	44300.2	1.00	44,300	188,878

Pond A Stage-Storage



Emergency Spillway Weir Calculations

Project Name: Parker 234

Project No. 1804102

Calculated By: MEF

Checked By: KAL

Date: 1/31/03

Weir Equation:

$$Q = C * L * (H)^{3/2}$$

$$C_d = 3.37 \quad (\text{trapezoidal weirs})$$

Note: Weirs are designed to pass 2x the 100yr. tributary flow.

(Refer to SF-3 form)

Pond A Emergency Spillway

Flow Rate ($2 * Q_{100}$) =	383.4 cfs	
Top of Berm Elevation =	5995.00 feet	Freeboard = 1.00
Emergency Spillway Elevation =	5994.00 feet	
100 yr. Water Surface Elevation =	5992.10 feet	
Height (H) =	1.90 feet	
Length (D) =	43.48 feet	

Pond B Emergency Spillway

Flow Rate ($2 * Q_{100}$) =	353.1 cfs	
Top of Berm Elevation =	6089.00 feet	Freeboard = 1.00
Emergency Spillway Elevation =	6088.00 feet	
Bottom of Berm Elevation* =	6086.00 feet	*100 yr. W.S. Elevation = 6083.8 feet
Height (H) =	2.00 feet	
Length (D) =	37.08 feet	

Pond C Emergency Spillway

Flow Rate ($2 * Q_{100}$) =	58.1 cfs	
Top of Berm Elevation =	6118.00 feet	Freeboard = 1.00
Emergency Spillway Elevation =	6117.00 feet	
100 yr. Water Surface Elevation =	6116.20 feet	
Height (H) =	0.80 feet	
Length (D) =	24.13 feet	

Pond D Emergency Spillway

Flow Rate ($2 * Q_{100}$) =	160.0 cfs	
Top of Berm Elevation =	6050.50 feet	Freeboard = 1.00
Emergency Spillway Elevation =	6049.50 feet	
100 yr. Water Surface Elevation =	6048.50 feet	
Height (H) =	1.00 feet	
Length (D) =	47.53 feet	

Circular Orifice Sizing

Pond A

DATA:

Flow Rate (Q) = 25.71 cfs
 Water Surface Elevation = 5992.10 feet
 Invert of Orifice = 5981.80 feet
 Height of water surface = 10.30 feet
 to invert of orifice (Y)
 Diameter of Orifice (D) = 1.42 feet
 Height of water surface = 10.30 feet
 to centroid of orifice (h)
 $C_d = 0.65$ for circular orifices
 $g = 32.20 \text{ ft/s}^2$

Project Name: Parker 234

Project No. 1804102

Calculated By: MEF

Checked By: KAL

Date: 01/31/03

Orifice Equation:

$$Q = C_d * A * (2gh)^{1/2}$$

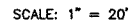
$$Q = C_d * 3.1415 * D^2 / 4 * (2gh)^{1/2}$$

$$Q = 0.65 * 3.1415 * D^2 / 4 * (2 * 32.2 * h)^{1/2}$$

$$D = (Q / (.5105 * (64.4 * h)^{1/2}))^{1/2}$$

Calculation Table for Orifice Size

%	h = %*Y	Diam. (D)	Actual h	h/Y
98%	10.09	1.41	9.60	93%
97%	9.99	1.41	9.60	93%
96%	9.89	1.41	9.59	93%
95%	9.79	1.42	9.59	93%
94%	9.68	1.42	9.59	93%
93%	9.58	1.42	9.59	93%
92%	9.48	1.43	9.59	93%
91%	9.37	1.43	9.58	93%
90%	9.27	1.44	9.58	93%
89%	9.17	1.44	9.58	93%
88%	9.06	1.44	9.58	93%
87%	8.96	1.45	9.58	93%
86%	8.86	1.45	9.57	93%
85%	8.76	1.46	9.57	93%
84%	8.65	1.46	9.57	93%
83%	8.55	1.47	9.57	93%
82%	8.45	1.47	9.57	93%
81%	8.34	1.47	9.56	93%
80%	8.24	1.48	9.56	93%
79%	8.14	1.48	9.56	93%
78%	8.03	1.49	9.56	93%



	RR#1	RR#2
LENGTH	23	61'
WIDTH	12	40'
DEPTH	2.5"	1.5"
SIZE_d50	9"	12"
TYPE	L	M

* SEE DETAIL

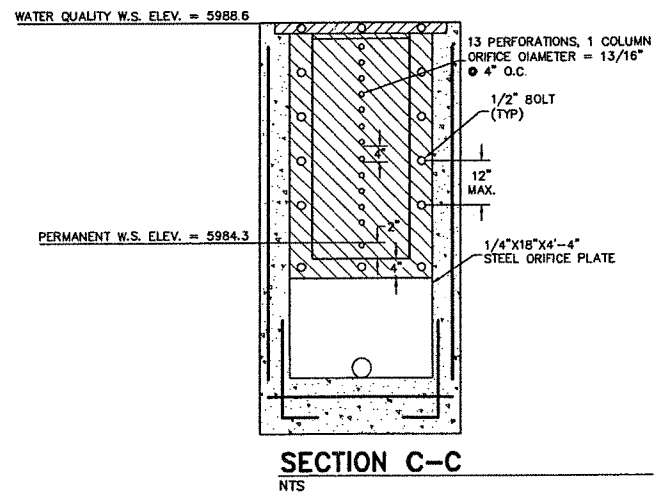
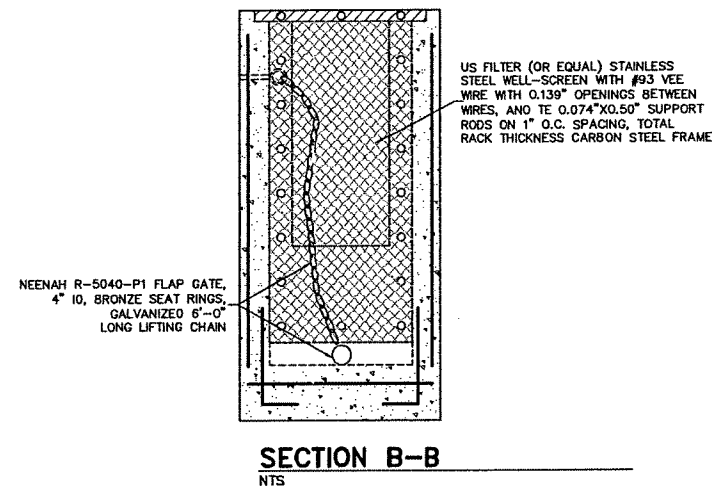
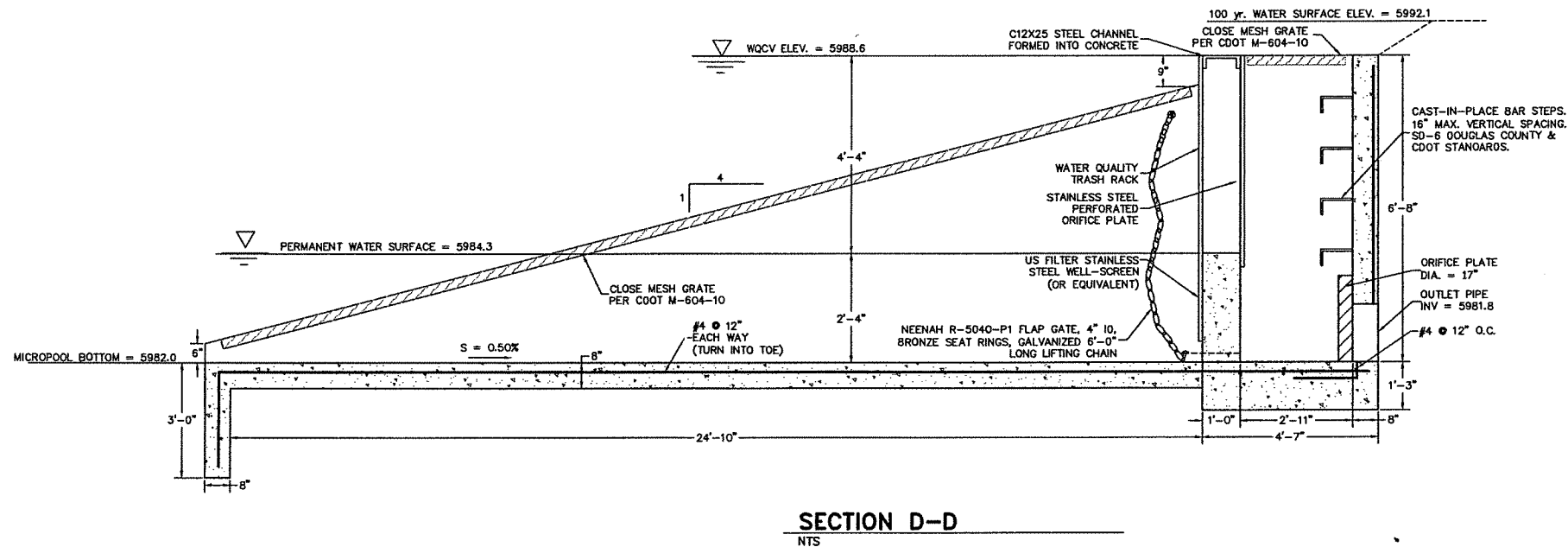
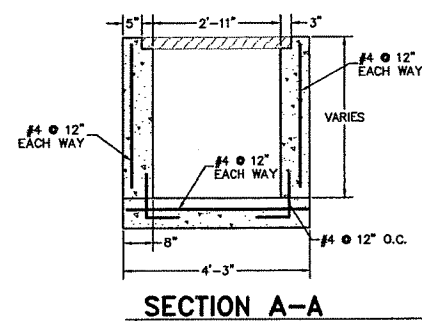
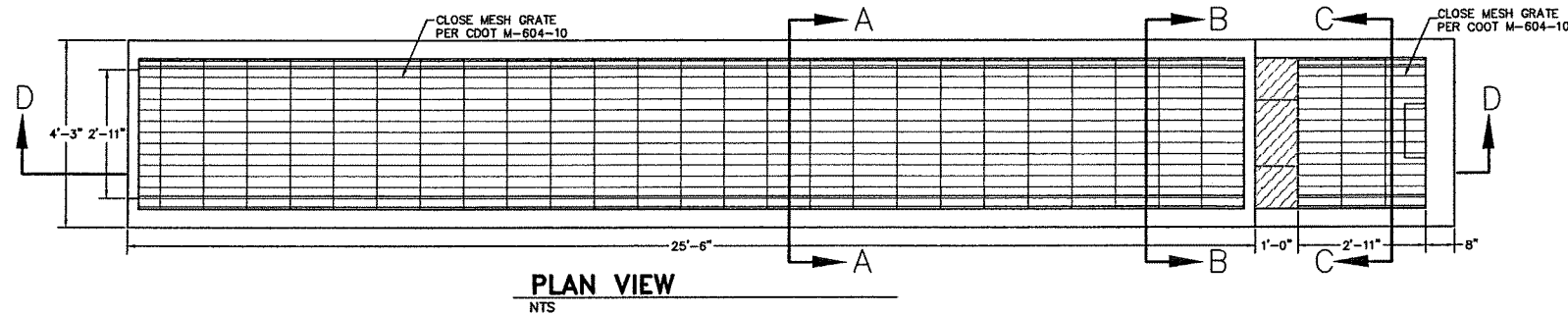
BURY TYPE L RIPRAP WITH 4" NATIVE TOPSOIL AND RESEED OR RESOOL.

	Q 10yr.	Q 100yr.
PEAK INFLOW (cfs)	127.4	191.7
PEAK OUTFLOW (cfs)	7.0	50.9
WQCV (Ac.Ft.)		0.68
10 yr. REQUIRED VOL. (Ac.Ft.)		1.55
100 yr. REQUIRED VOL. (Ac.Ft.)		2.72
DETENTION CAPACITY (Ac.Ft.)		3.42
AVAILABLE FREEBOARD (ft.)		1.0



SHEET NUMBER	16	DRAWN BY:	JAM	SCALE:	AS SHOWN
		CHECKED BY:	KAL	FILE NO:	01804102
		DATE:	FEBRUARY 2003		

POND A DETAILS



SHEET NUMBER	DRAWN BY:	CHECKED BY:	DATE:	SCALE:	AS SHOWN	FILE NO.	No.	Revisions			Date	Appr.	Date
17	MEF	KAL	FEBRUARY 2003			01804102							
DOUGLAS 234 FILING 1 STREET AND DRAINAGE IMPROVEMENTS POND A OUTLET DETAILS													
Continental Homes 7600 East Orchard Road, Ste. 165-S Greenwood Village, CO 80111													
7901 E. Bellevue Avenue Suite 150 Englewood, CO 80150 Tel: (720) 482-9526 Fax: (720) 482-9546													
CONSULTANTS OF COLORADO, INC. CIVIL ENGINEERING - LAND SURVEYING - LAND PLANNING													

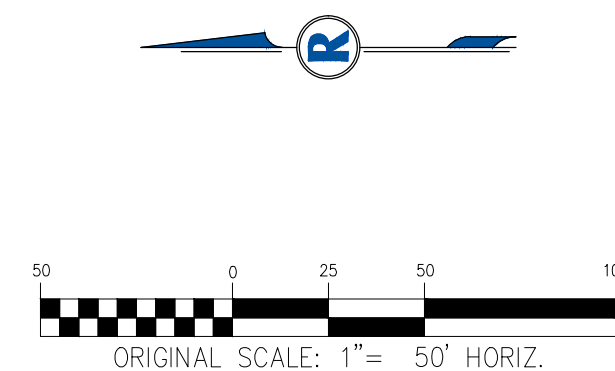
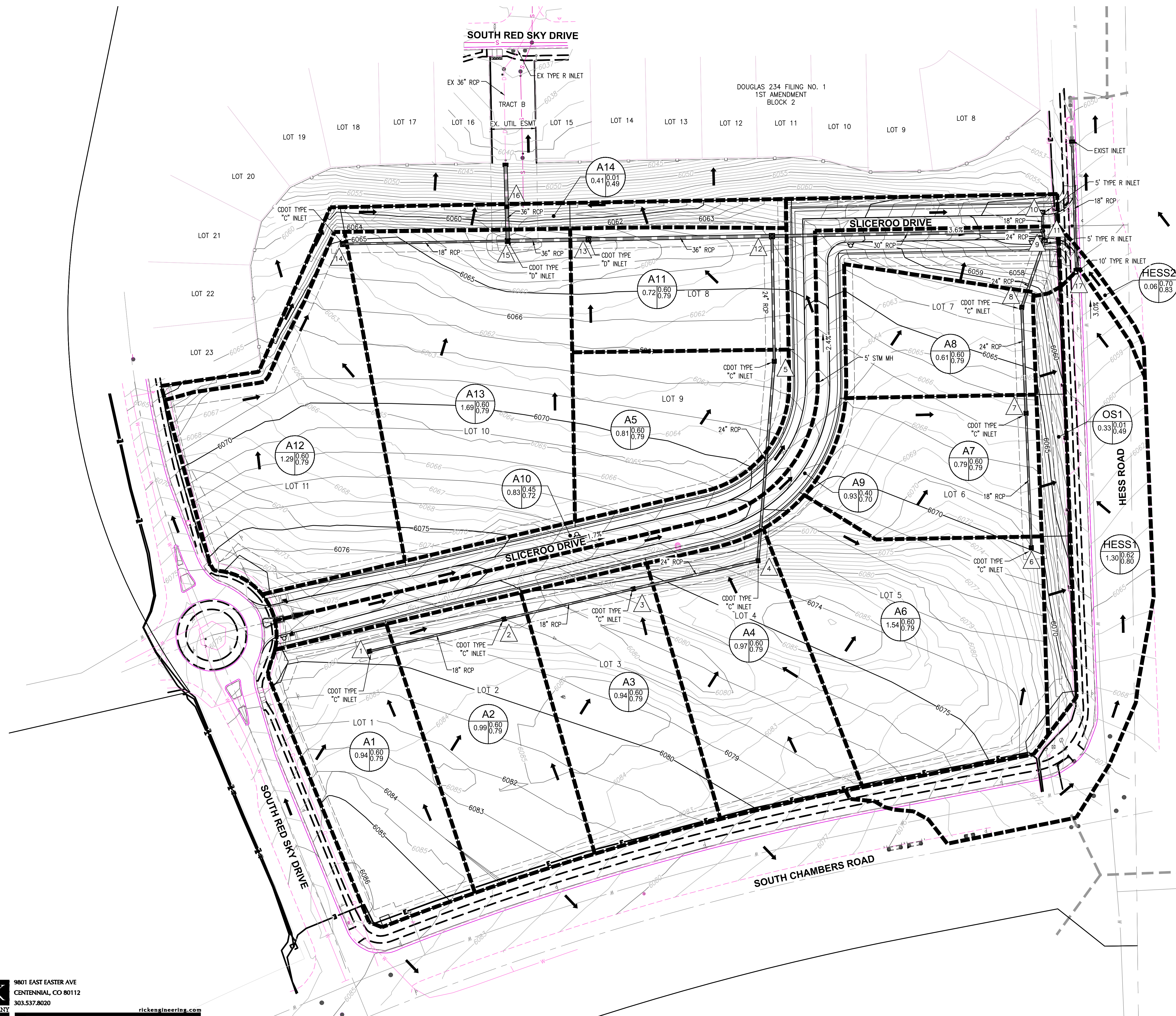
CHAMBERS & HESS FILING NO. 1, L1173, Chambers & Hess Water Resources Report Call File 01173-0001_0002.dwg



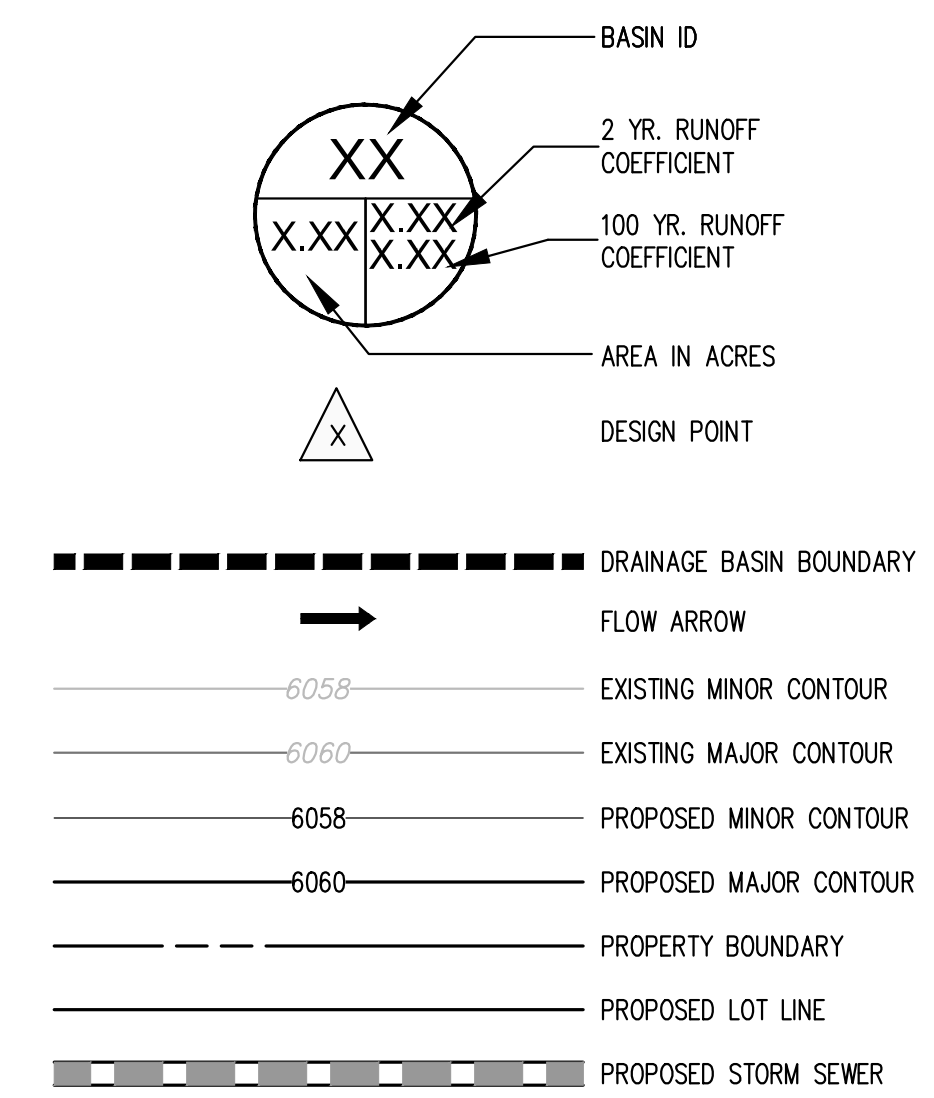
9801 EAST EASTER AVE
CENTENNIAL, CO 80112
303.537.8020

rickengineering.com

Tucson - San Diego - Sacramento - Riverside - Orange - San Luis Obispo - Phoenix



LEGEND



DESIGN POINT SUMMARY

DESIGN POINT	2YR (CFS)	100YR (CFS)
1	1.9	6.5
2	3.8	13.2
3	5.5	19.4
4	7.3	25.7
5	8.7	30.7
6	3.1	10.7
7	4.6	16.0
8	5.8	20.1
9	1.1	7.2
10	1.0	4.3
11	6.9	27.6
12	13.8	52.6
13	14.6	55.6
14	2.6	9.0
15	19.0	71.1
16	19.0	72.5
17	2.3	9.1

BASIN SUMMARY

BASIN	Q2 CFS	Q100 CFS
A1	1.9	6.5
A2	2.0	6.9
A3	1.9	6.6
A4	2.0	6.8
A5	1.6	5.7
A6	3.1	10.7
A7	1.6	5.5
A8	1.2	4.2
A9	1.0	4.7
A10	1.0	4.3
A11	1.5	5.0
A12	2.6	9.0
A13	3.4	11.8
A14	0.0	1.8
HESS1	2.3	7.8
HESS2	0.1	0.5
OS1	0.0	1.4

POST-DEVELOPMENT
DRAINAGE MAP FOR
CHAMBERS & HESS FILING NO. 1

SHEET 2 OF 2

D-1173
DATE: MAY 5, 2020

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NOT FOR CONSTRUCTION – EXHIBIT FOR DRAINAGE STUDY REPORT ONLY

**STANDARD FORM SF-3
STORM DRAINAGE SYSTEM DESIGN
(RATIONAL METHOD PROCEDURE)**

CALCULATED BY:
DATE:
CHECKED BY:

BHE
5/4/20

P1= 2.60

JOB NO: D01173
PROJECT: CHAMBERS AND HESS FILING NO. 1
DESIGN STORM: 100 YEAR

BASIN	DESIGN POINT	DIRECT RUNOFF							TOTAL RUNOFF				STREET		PIPE			TRAVEL TIME			REMARKS
		AREA DESIG.	AREA (Acres)	RUNOFF COEFF	Tc (min)	C A (Acres)	I (in/hour)	Q (cfs)	Tc (min)	(C A) (Acres)	I (in/hour)	Q (cfs)	SLOPE (%)	STREET FLOW (cfs)	DESIGN FLOW (cfs)	SLOPE (%)	PIPE SIZE (in)	LENGTH (ft)	VELOCITY (fps)	Tt (min)	
A1	1	A1	0.94	0.79	5.0	0.74	8.82	6.5							6.5	1.2	18	147	6.7	0.4	INL-09 TO INL-08
A2	2		0.99	0.79	5.0	0.78	8.82	6.9													
	2	A1+A2							5.4	1.53	8.65	13.2			13.2	1.8	18	141	9.0	0.3	INL-08 TO INL-07
A3	3		0.94	0.79	5.0	0.75	8.82	6.6													
	3	A1-A3							5.6	2.27	8.54	19.4			19.4	3.2	24	137	12.6	0.2	INL-07 TO INL-06
A4	4		0.97	0.79	5.0	0.77	8.82	6.8													
	4	A1-A4							5.8	3.04	8.46	25.7			25.7	1.8	24	218	10.8	0.3	INL-06 TO INL-05
A5	5		0.81	0.79	5.0	0.64	8.82	5.7													
	5	A1-A5							6.1	3.68	8.32	30.7			30.7	10.5	24	136	22.3	0.1	INL-05 TO SDMH-01
A6	6	A6	1.54	0.79	5.0	1.22	8.82	10.7							10.7	3.0	18	146	10.6	0.2	INL-14 TO INL-13
A7	7	A6-A7	0.79	0.79	5.0	0.62	8.82	5.5	5.2	1.84	8.71	16.0			16.0	6.3	24	115	15.4	0.1	INL-13 TO INL-12
A8	8	A6-A8	0.61	0.79	5.0	0.48	8.82	4.2	5.4	2.32	8.66	20.1			20.1	5.0	24	76	15.0	0.1	INL-12 TO INL-11
OS1			0.33	0.49	5.0	0.16	8.82	1.4													
HESS1	17	HESS1	1.30	0.80	8.4	1.04	7.52	7.8	8.4	1.21	7.52	9.1									
									8.4	0.84	7.52	6.3									CAPTURED BY INLET INL-15 BYPASSED INLET 15 TO INLET A11
HESS2			0.06	0.83	5.0	0.05	8.82	0.5													
A9	9	A9+HESS1+HESS2	0.93	0.70	9.1	0.65	7.29	4.7	9.1	1.07	7.29	7.8									INL-11 INLET DESIGN
		A6-A9+HESS1+HESS2							9.1	3.39	7.29	24.7			24.7	0.5	24	11	7.9	0.0	DP9: RUNOFF LEAVING INL-11
A10	10	A10	0.83	0.72	9.8	0.60	7.10	4.3							4.3	0.5	18	21	4.4	0.1	INL-10 TO SDMH-02
	11	A6-A10							9.9	3.99	7.07	28.2			28.2	0.5	24	294	9.0	0.5	SDMH-02 TO SDMH-01
	12	A1-A10							10.4	7.67	6.92	53.1			53.1	0.5	36	199	7.5	0.4	SDMH-01 TO INL-04
A11	13	A1-A11	0.72	0.79	5.0	0.57	8.82	5.0	10.8	8.24	6.81	56.1			56.1	0.5	36	88	7.9	0.2	INL-04 TO INL-02
A12	14	A12	1.29	0.79	5.0	1.02	8.82	9.0							9.0	8.1	18	179	14.6	0.2	INL-03 TO INL-02

Proposed flow is 9.24 cfs



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