



Final Drainage Report

New Horizon Academy

Douglas 234, Filing 6 Lot 11

Parker, Colorado

NHOAC 156217 | August 26, 2020



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Final Drainage Report

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

SEH No. NHOAC 156217

January 22, 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.

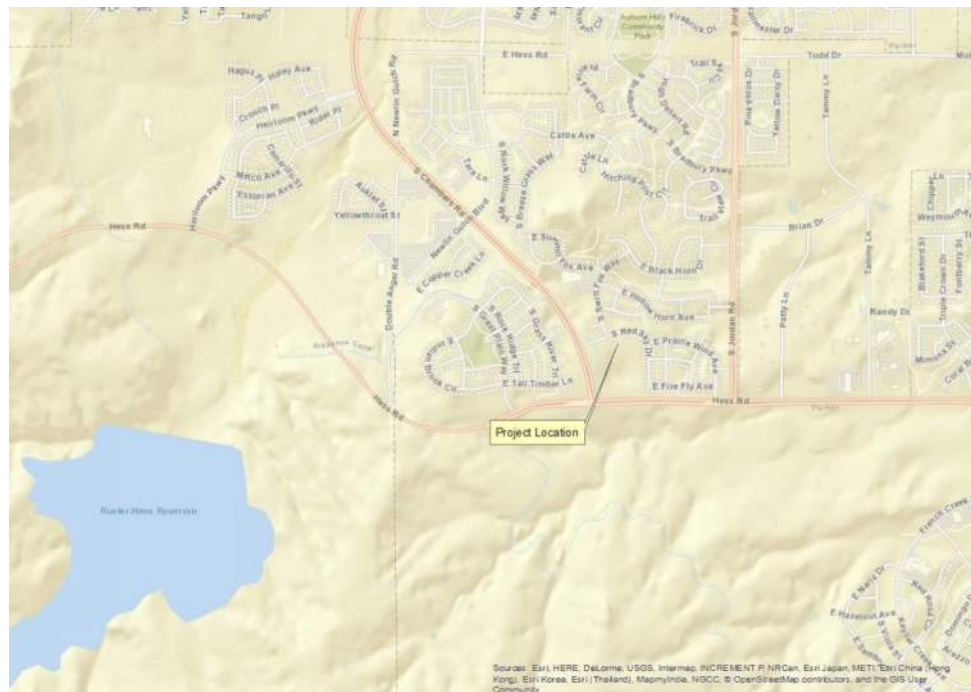


Figure 1 Vicinity Map (ESRI ArcGIS)

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 north and 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 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 in the 5 year recurrence interval. The major storm is the 100 year recurrence interval.

The site is 1.52 acres. 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, however the 0.11 cfs 100-year storm event is substantially lower than what the existing condition is.

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 3.76 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. 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 south side roof drain pipes will connect to this manhole (ST-3). 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 9.35 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 4% 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 1.21 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

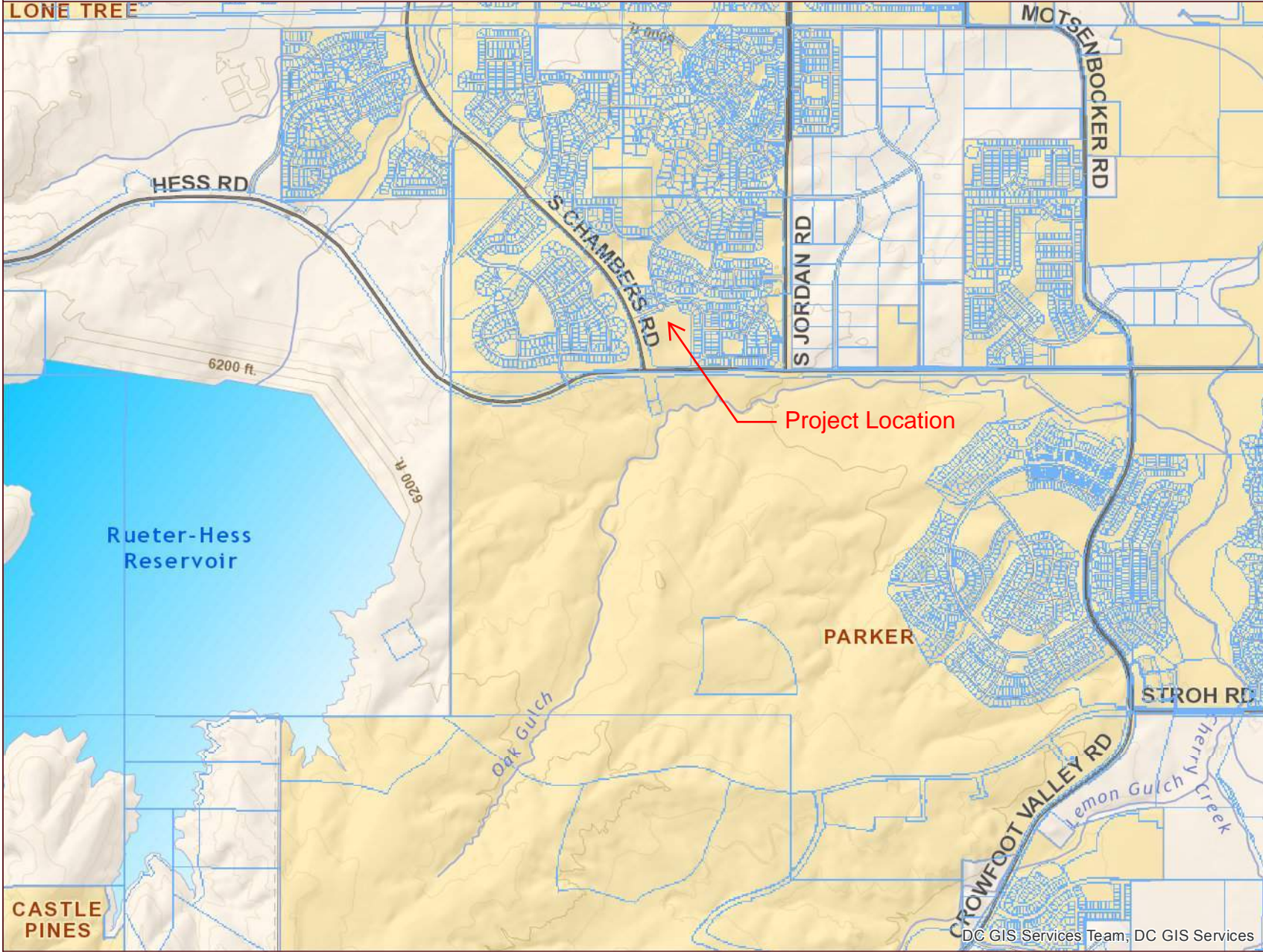
A-2 – Floodplain Information

A-3 – Soils Map

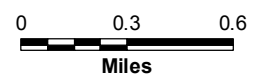
A-4 – Drainage Plan

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.

Douglas County GIS Division
 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 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. If flood elevation data presented in the Flood Profiles and Floodway Data Summary of Stillwater Elevations tables should be utilized in conjunction with for purposes of construction and/or floodplain management.

of the Floodway Elevations 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

action 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 of FIRMs for adjacent jurisdictions may result in slight positional s in map features across jurisdiction boundaries. These differences do not accuracy of this FIRM.

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 Geodetic Vertical Datum of 1929 and the North American Datum of 1983, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov> or contact the National Geodetic Survey at the following information Services: NGS312 Geodetic Survey #9202, West Highway 19, Maryland 20910-3282.

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.noaa.gov>.

Information shown on this FIRM was provided by the Douglas County GIS Department and the Town of Castle Rock GIS Department. Additional 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.

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

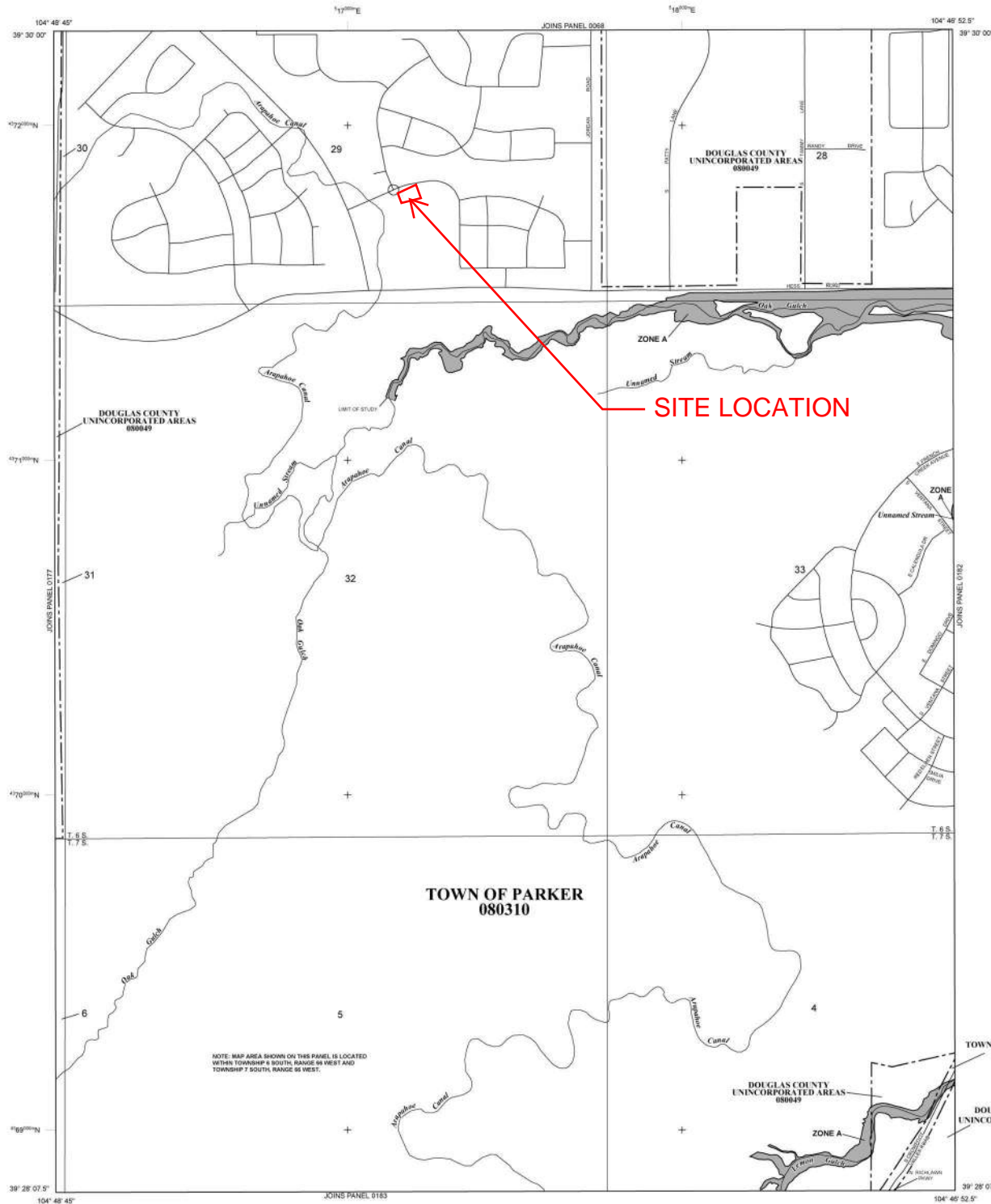
updated topographic information, this map reflects more detailed and stream channel configurations and floodplain delineations than own on the previous FIRM for this jurisdiction. As a result, the Flood and Floodway Data tables for multiple streams in the Flood Study Report (which contains authoritative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

limits shown on this map are based on the best data available at the time. Because changes due to annexations or de-annexations may have after 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 showing the layout of map panels, community map repository addressing of Communities table containing National Flood Insurance Program each community as well as a listing of the panels on which each community

on available products associated with this FIRM visit the **Map Center (MSC)** website at <http://msc.fema.gov>. Available products may eventually issued Letters of Map Change, a Flood Insurance Study Report, digital versions of this map. Many of these products can be ordered or directly from the MSC website.

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



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) 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 with a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zone A, Zone AH, Zone AR, Zone V, and Zone VE. The Base Flood Elevation is the water elevation of the 1% annual chance flood.

ZONE A No Base Flood Elevations determined.

ZONE AH Base Flood Elevations determined.

ZONE AR Flood depths of 1 to 3 feet (usually areas of ponding). Base Flood Elevation determined.

ZONE AD Flood depths of 3 to 5 feet (usually sheet flow on sloping terrain). Base Flood Elevation determined. For areas of shallow flood 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 AVS Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.

ZONE V Coastal flood zone with velocity hazard (wave action); no Base Flood Elevation 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 topographic 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 X Areas determined to be outside the 0.2% annual chance floodplain.

ZONE O Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

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

1% Annual Chance Floodplain Boundary

0.2% Annual Chance Floodplain Boundary

Floodway boundary

Zone O boundary

CBRS and OPA boundary

Boundary showing Special Flood Hazard Area Zones and including Special Flood Hazard Areas of different base flood depths, or flood velocity.

Base Flood Elevation line and value; elevation in feet (EL 98.1)

Base Flood Elevation value where uniform within zone, area, lot.

Vertical Datum of 1988

Cross section line

Transect line

Geographic coordinate referenced to the North American Datum of 1983 (NAD 83) Universal Transverse

1000-meter Universal Transverse Mercator grid values, zone 13

Bench mark (see explanation in Notes to Users section of this map)

1 mi S

River Mile

MSP REPOSITORIES
 Refer to Map Repository list on back index

EFFECTIVE DATE OF COUNTYWIDE 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 frame, to address and to reflect updated topographic information, to incorporate previously issued letters of map change.

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 Flood Insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-626-6622.

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP
DOUGLAS COUNTY, COLORADO
AND INCORPORATED AREAS

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

COMMUNITY	NUMBER	PANEL
DOUGLAS COUNTY	080849	0181
PARKER, TOWN OF	080310	0181

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

MAP NUMBER
 080350
MAP REV
 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



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

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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

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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

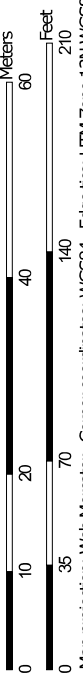
The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report Soil Map

































Soil Map may not be valid at this scale.

Map Scale: 1:773 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 13N WGS84

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

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,

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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*

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Custom Soil Resource Report

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

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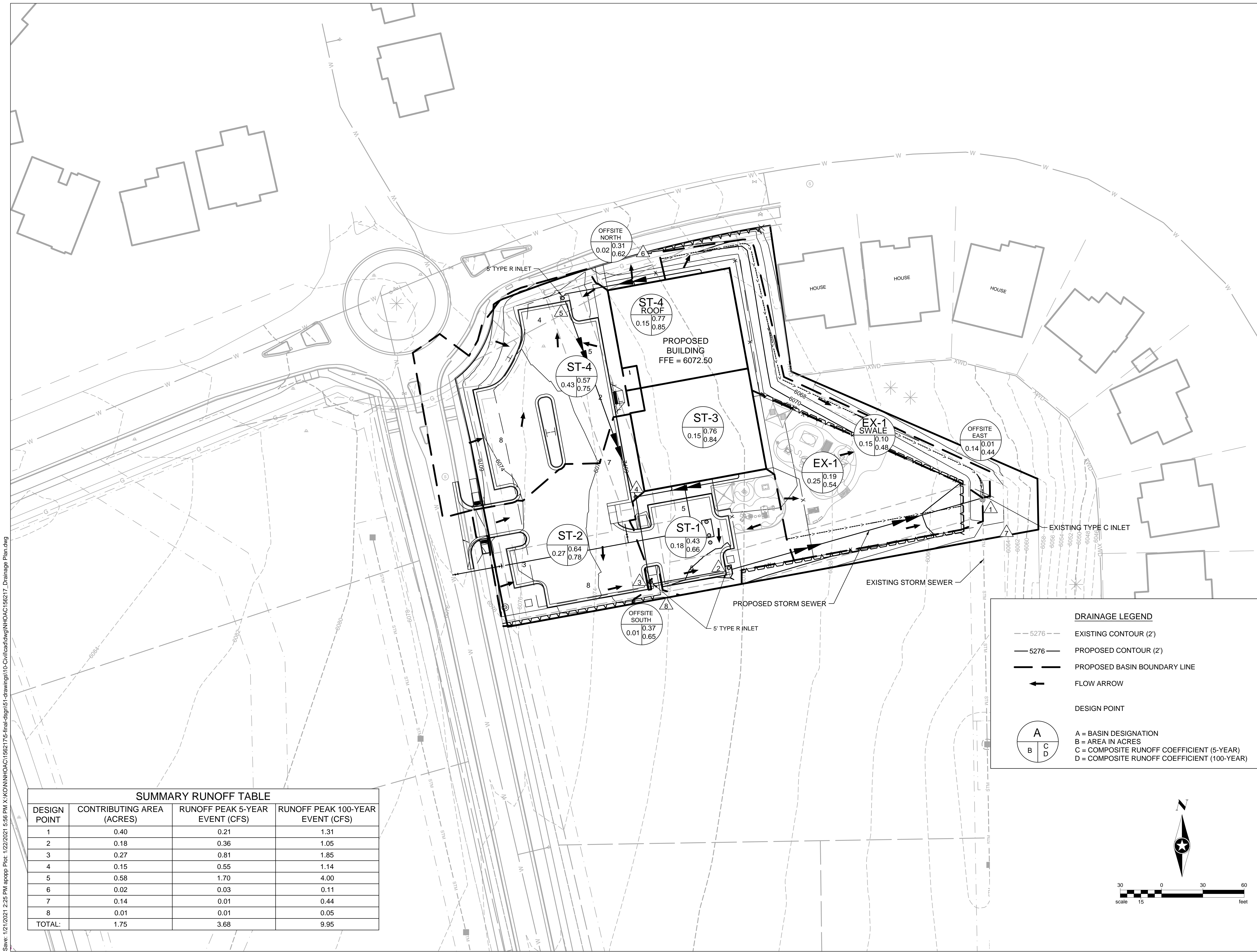
SEH Project: NHOAC 156217
Checked By: DJH
Drawn By: AMP

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

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

DRAINAGE PLAN

1 OF 1



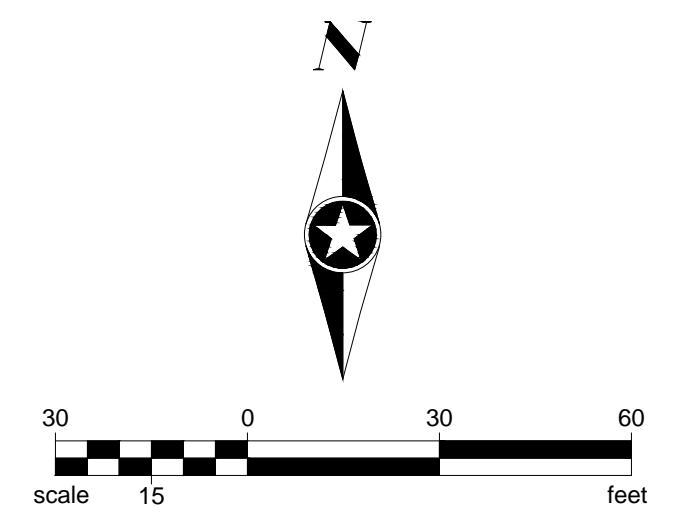
DRAINAGE LEGEND

- 5276 --- EXISTING CONTOUR (2')
- 5276 — PROPOSED CONTOUR (2')
- — — PROPOSED BASIN BOUNDARY LINE
- ← FLOW ARROW

DESIGN POINT

A	B	C	D
---	---	---	---

- A = BASIN DESIGNATION
- B = AREA IN ACRES
- C = COMPOSITE RUNOFF COEFFICIENT (5-YEAR)
- D = COMPOSITE RUNOFF COEFFICIENT (100-YEAR)



SUMMARY RUNOFF TABLE

DESIGN POINT	CONTRIBUTING AREA (ACRES)	RUNOFF PEAK 5-YEAR EVENT (CFS)	RUNOFF PEAK 100-YEAR EVENT (CFS)
1	0.40	0.21	1.31
2	0.18	0.36	1.05
3	0.27	0.81	1.85
4	0.15	0.55	1.14
5	0.58	1.70	4.00
6	0.02	0.03	0.11
7	0.14	0.01	0.44
8	0.01	0.01	0.05
TOTAL:	1.75	3.68	9.95

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SEH Project Checked By: TIM NUETZEL License No. 37763

Project Status: TOWN REVIEW Issue Date: 8/26/2020

Revision Issue: Rev. # 1 Description: TOWN COMMENTS Date: 1/22/2021

COVER SHEET

C0.0

DOUGLAS 234, FILING NO. 6

A PORTION OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 29, TOWNSHIP 6 SOUTH, RANGE 66 WEST OF THE 6TH PRINCIPAL MERIDIAN TOWN OF PARKER, COUNTY OF DOUGLAS, STATE OF COLORADO 1.651 ACRES

SITE PLANS FOR NEW HORIZON ACADEMY

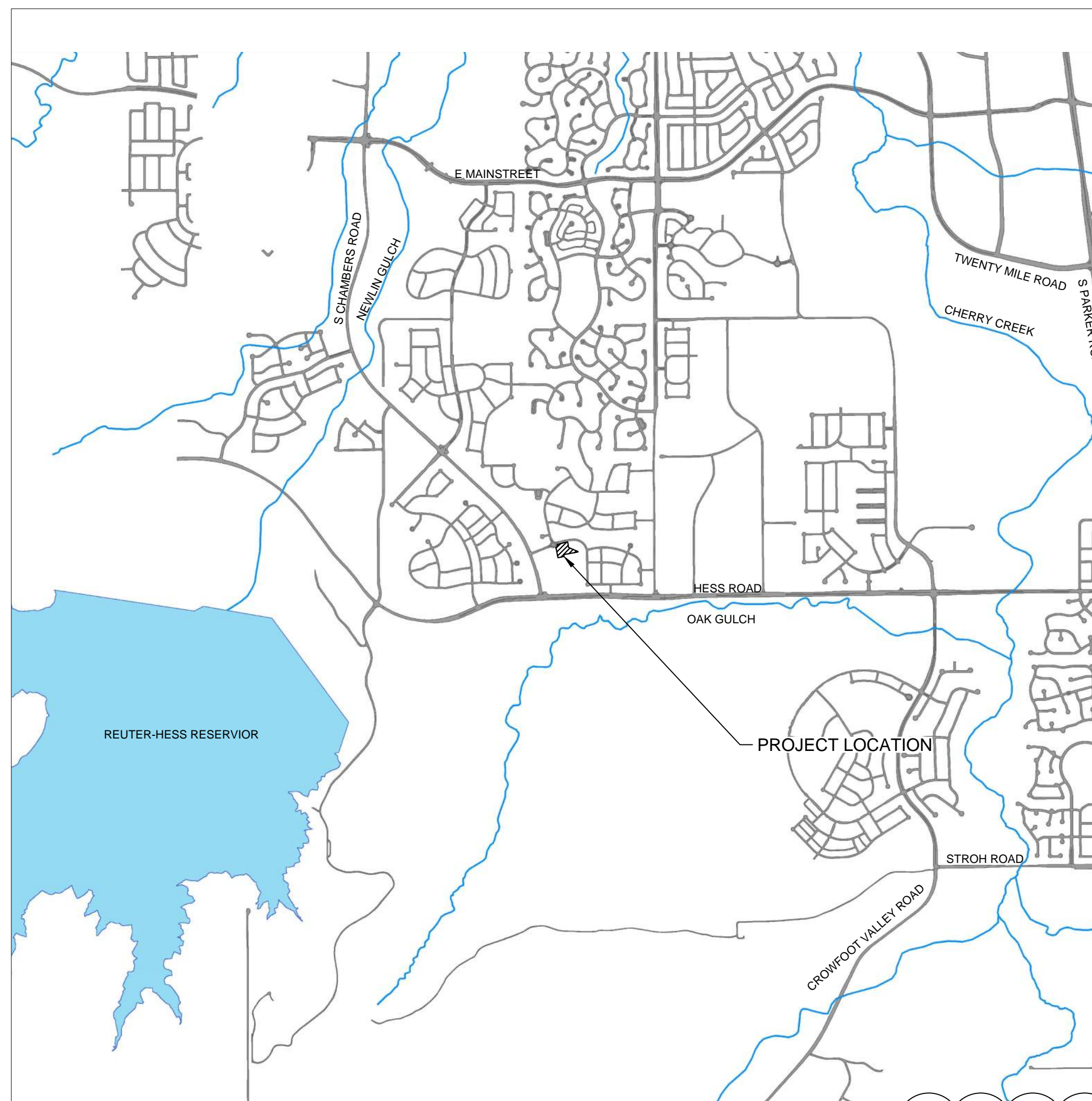
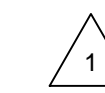


Table with 2 columns: SHEET NUMBER and SHEET TITLE. Lists sheets C0.0 through L1.04 including Cover Sheet, General Notes, Existing Conditions, Overall Site, Building Site Layout, Parking Lot Site Layout, Retaining Wall Plan, Civil Details, Grading Plan, Initial CBMP Plan, Interim-Final CBMP Plan, CBMP Details, Storm Sewer Plan - Parking Lot, Storm Sewer Plan - Playground, Storm Sewer Details, Signage Plan, Preliminary Exterior Elevations, Preliminary Elevations, Perspectives, Photometric Site Plan, Light Fixture Cutsheets, Landscape Plan, Irrigation Diagram, Landscape Details, Sign Details, and Playground Plans.



SITE DISTANCE CERTIFICATION

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THE PROPOSED SUBDIVISION IS DESIGNED IN ACCORDANCE WITH THE TOWN OF PARKER SIGHT DISTANCE CRITERIA AND WITH AASHTO POLICY ON GEOMETRIC DESIGN OF HIGHWAY & STREETS.

TIM NUETZEL LICENSE NO. 37763

EXISTING

- RIGHT OF WAY
PERMANENT EASEMENT
PROPERTY LINE
HORIZONTAL CONTROL POINT
BENCHMARK
SURVEY MARKER
SOIL BORING
SANITARY SEWER AND MANHOLE
FORCE MAIN AND LIFT STATION
SANITARY SEWER SERVICE & CLEANOUT
WATER MAIN, HYDRANT, VALVE AND MANHOLE
WATER SERVICE AND CURB STOP BOX
STORM SEWER, MANHOLE AND CATCH BASIN
CULVERT AND APRON ENDWALL
GAS MAIN, VALVE, VENT AND METER
HANDHOLE
BURIED FIBER OPTIC CABLE AND MANHOLE
BURIED PHONE CABLE, PEDESTAL AND MANHOLE
BURIED TV CABLE, PEDESTAL AND MANHOLE
BURIED ELECTRIC CABLE, PEDESTAL, MANHOLE, TRANSFORMER AND METER
OVERHEAD WIRE, POLE AND GUY WIRE
LIGHT POLE
TRAFFIC SIGNAL
STREET NAME SIGN
SIGN (NON STREET NAME)
RAILROAD TRACKS
DECIDUOUS AND CONIFEROUS TREE
BUSH / SHRUB AND STUMP
EDGE OF WOODED AREA
WETLAND
BUILDING
FENCE (UNIDENTIFIED)
BARBED WIRE FENCE
CHAIN LINK FENCE
ELECTRIC WIRE FENCE
WOOD FENCE
WOVEN WIRE FENCE
PLATE BEAM GUARDRAIL
CABLE GUARDRAIL
POST / BOLLARD
RETAINING WALL

PROPOSED

- STREET CENTERLINE
RIGHT-OF-WAY
PERMANENT EASEMENT
TEMPORARY EASEMENT
CONSTRUCTION LIMITS
SANITARY SEWER, BULKHEAD AND MANHOLE
FORCE MAIN
SANITARY SERVICE AND CLEANOUT
WATER MAIN, TEE, HYDRANT, BULKHEAD AND VALVE
WATER VALVE MANHOLE, REDUCER, BEND AND CROSS
WATER SERVICE AND CURB STOP BOX
STORM SEWER, MANHOLE AND CATCH BASIN
CULVERT AND APRON ENDWALL
DRAIN TILE
DITCH / SWALE
RIPRAP
STREET NAME SIGN
SIGN (NON STREET NAME)
RETAINING WALL

SOIL PREPARATION AND PAVEMENT DESIGN NOTE

SOIL PREPARATION AND PAVEMENT DESIGN SHALL BE PER RECOMMENDATIONS FROM A GEOTECHNICAL REPORT PREPARED FOR THIS SITE AS FOLLOWS.

GEOTECHNICAL ENGINEER: ROCKY MOUNTAIN GROUP. PROJECT NO. 167366

THE CONTRACTOR MUST FULLY REVIEW THIS REPORT AND BRING ANY CONFLICTS BETWEEN IT AND THE CONSTRUCTION PLANS AND SPECIFICATIONS TO THE ENGINEER'S ATTENTION PRIOR TO BEGINNING WORK.

BASIS OF BEARINGS:

THE SOUTH LINE OF THE SOUTHWEST QUARTER OF SECTION 29 TOWNSHIP 6 SOUTH, RANGE 66 WEST, 6TH P.M. BEARING SOUTH 89°15'13" WEST AS SHOWN ON FINAL PLAT DOUGLAS 234 FILING NO. 1.

BENCHMARK

BENCHMARK IS BY GPS OBSERVATION NAVD 88. SET SITE BENCHMARK AT NORTHWEST CORNER OF INLET ON CHAMBERS RD. APPROXIMATELY 200'+/- NORTH OF HESS RD.

SCREENING

ALL MECHANICAL EQUIPMENT SHALL BE SCREENED FROM VIEW FROM A PUBLIC RIGHT OF WAY. FINAL LOCATION AND SCREENING MEASURES SHALL BE DETERMINED AT TIME OF FINAL SITE PLAN UNDER CHAPTER 13.06 OF THIS TITLE.

LEGAL DESCRIPTION:

THIS IS AN AS-SURVEYED PERIMETER DESCRIPTION AROUND THE SUBJECT PROPERTY AND IS NOT INTENDED TO REPLACE THE RECORD LEGAL DESCRIPTION.

LOT 11, DOUGLAS 234, FILING 6, TOWN OF PARKER, COUNTY OF DOUGLAS, STATE OF COLORADO.



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TOWN OF PARKER GENERAL NOTES – CONSTRUCTION

- 1. 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...

TOWN OF PARKER GENERAL NOTES – ROADWAY NOTES

- 1. 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.

TOWN OF PARKER GENERAL NOTES – STORM SEWER SYSTEM

- 1. 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...

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

- 9. 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.

TOWN OF PARKER GENERAL NOTES – SIGNAGE AND STRIPING

- 1. 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.

TOWN OF PARKER GENERAL NOTES – SIGNAGE AND STRIPING

- 15. 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.

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Owner: New Horizon Academy, 3405 Annapolis Lane N., Suite 100, Plymouth, MN 55447, 763.557.1111. Architect: Short Elliot Hendrickson, Inc., 2000 South Colorado Boulevard, Tower One, Suite 6000, Denver, Colorado 80222, 720.540.6800.

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Project Status: TOWN REVIEW. Issue Date: 8/26/2020.

Revision Issue table with columns: Rev. #, Description, Date. Row 1: 1, TOWN COMMENTS, 1/22/21.

GENERAL NOTES

C0.1



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

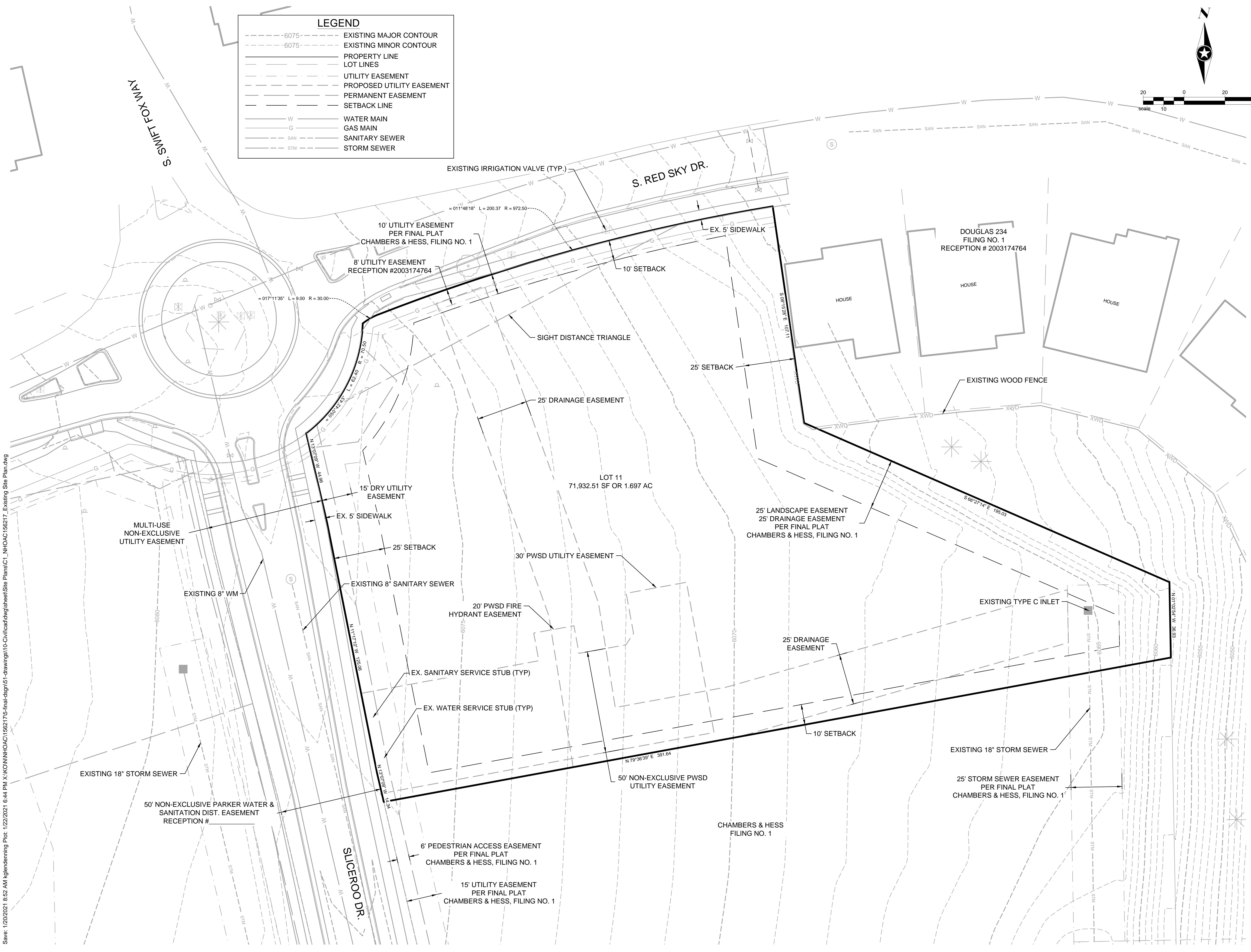
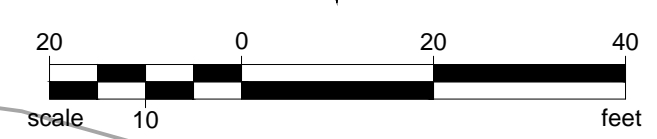
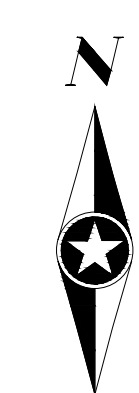
Rev. #	Description	Date
1	TOWN COMMENTS	1/22/21

EXISTING CONDITIONS

C1.0

LEGEND

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



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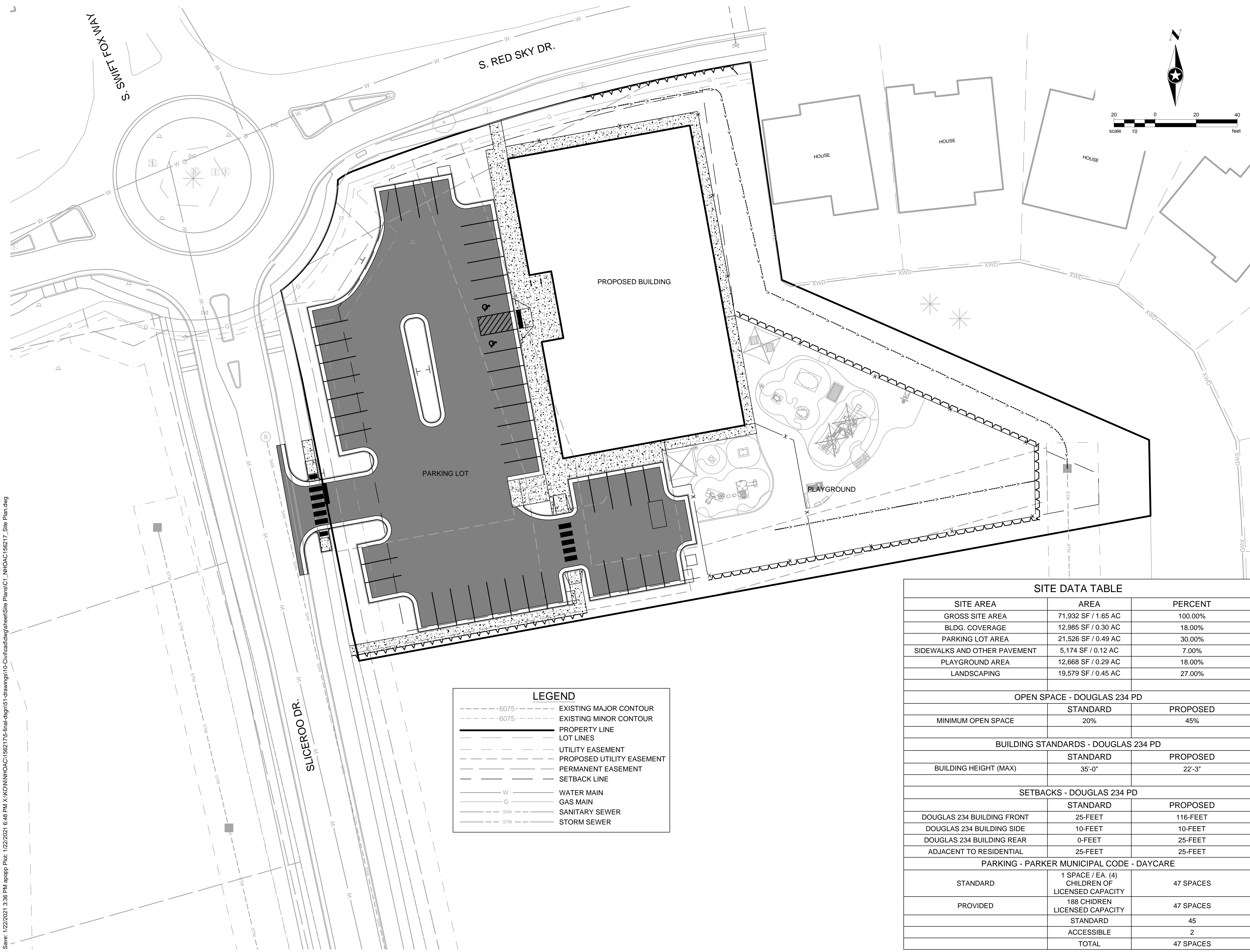
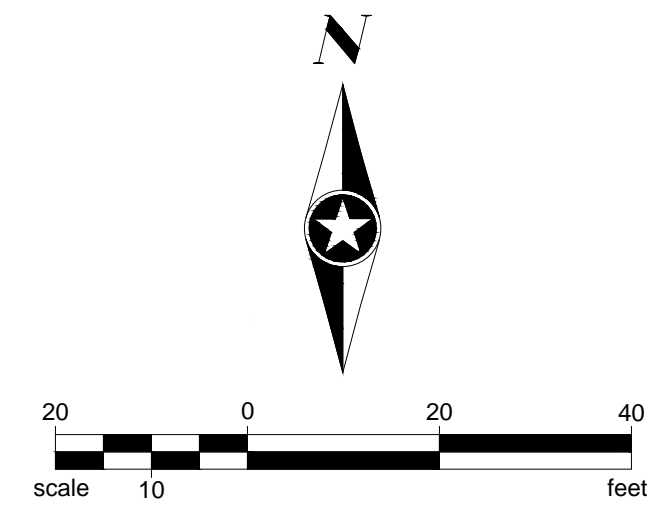
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LEGEND

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- - - - - PERMANENT EASEMENT
- SETBACK LINE
- W — WATER MAIN
- G — GAS MAIN
- SAN — SANITARY SEWER
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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

PARKING - PARKER MUNICIPAL CODE - DAYCARE

	STANDARD	PROPOSED
STANDARD	1 SPACE / EA. (4) CHILDREN OF LICENSED CAPACITY	47 SPACES
PROVIDED	188 CHIDREN LICENSED CAPACITY	47 SPACES
	STANDARD	45
	ACCESSIBLE	2
	TOTAL	47 SPACES

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OVERALL SITE

1

C1.1

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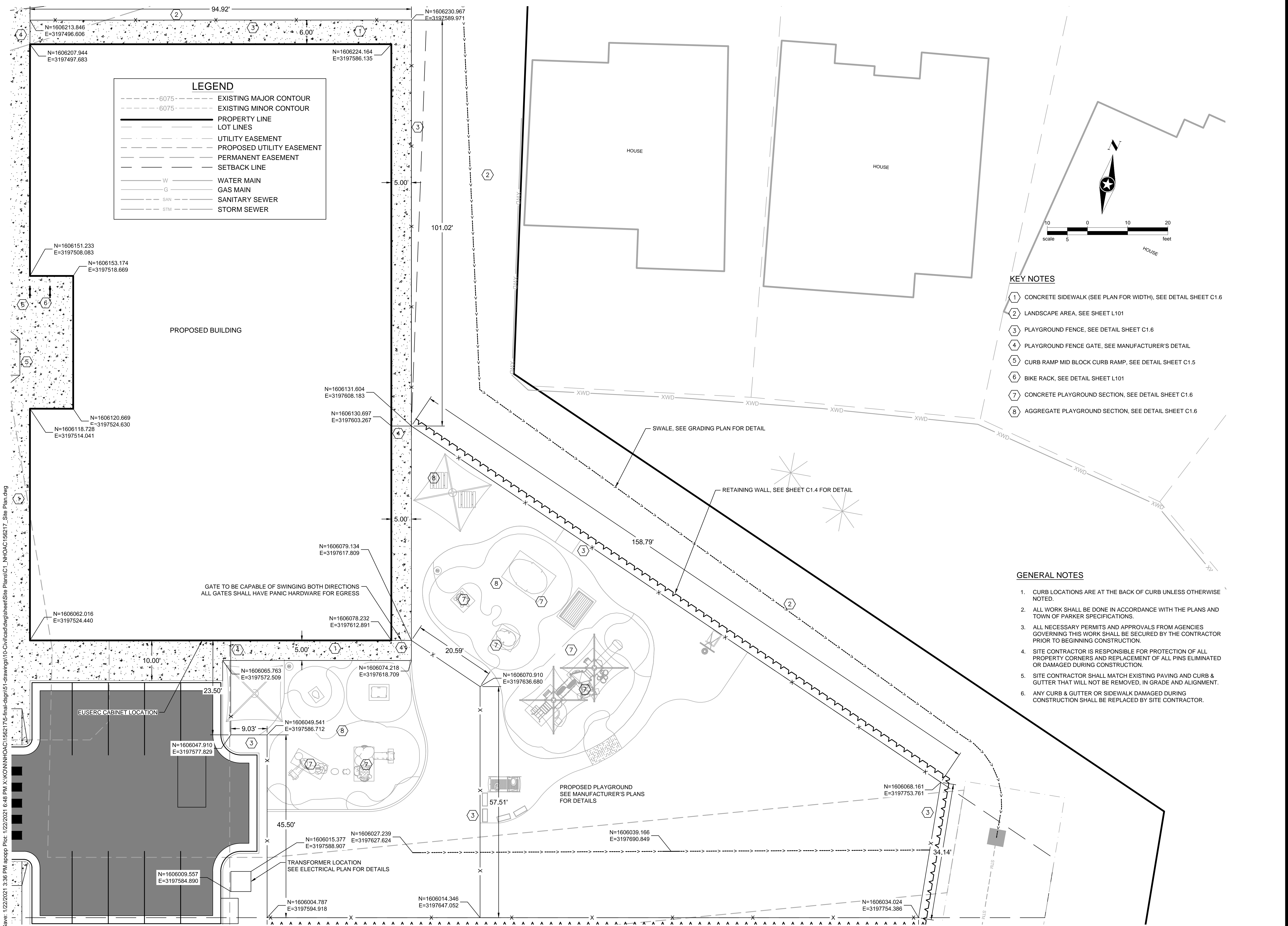
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Rev. #	Description	Date
1	TOWN COMMENTS	1/22/21

BUILDING SITE LAYOUT



C1.2



LEGEND

- - - - -6075- - - - - EXISTING MAJOR CONTOUR
- - - - -6075- - - - - EXISTING MINOR CONTOUR
- — — — — PROPERTY LINE
- — — — — LOT LINES
- - - - - UTILITY EASEMENT
- - - - - PROPOSED UTILITY EASEMENT
- - - - - PERMANENT EASEMENT
- - - - - SETBACK LINE
- 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 L101
 - 3 PLAYGROUND FENCE, SEE DETAIL SHEET C1.6
 - 4 PLAYGROUND FENCE GATE, SEE MANUFACTURER'S DETAIL
 - 5 CURB RAMP MID BLOCK CURB RAMP, SEE DETAIL SHEET C1.5
 - 6 BIKE RACK, SEE DETAIL SHEET L101
 - 7 CONCRETE PLAYGROUND SECTION, SEE DETAIL SHEET C1.6
 - 8 AGGREGATE PLAYGROUND SECTION, SEE DETAIL SHEET C1.6

- 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.
 5. SITE CONTRACTOR SHALL MATCH EXISTING PAVING AND CURB & GUTTER THAT WILL NOT BE REMOVED, IN GRADE AND ALIGNMENT.
 6. ANY CURB & GUTTER OR SIDEWALK DAMAGED DURING CONSTRUCTION SHALL BE REPLACED BY SITE CONTRACTOR.

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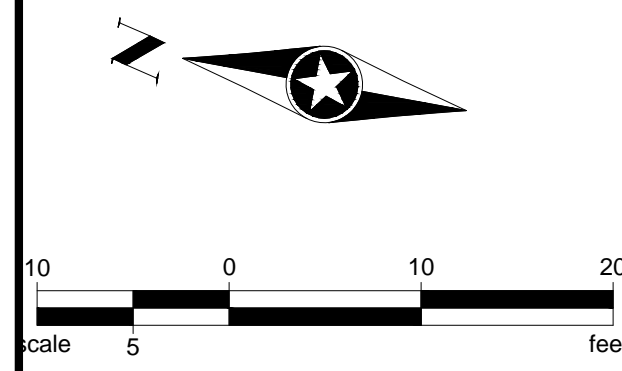
KEY NOTES

- 1 CONCRETE SIDEWALK (SEE PLAN FOR WIDTH), SEE DETAIL SHEET C1.6
- 2 LANDSCAPE AREA, SEE LANDSCAPE PLANS
- 3 PLAYGROUND FENCE, SEE DETAIL SHEET C1.6
- 4 PLAYGROUND FENCE GATE, SEE MANUFACTURER'S DETAIL
- 5 CURB RAMP MID BLOCK CURB RAMP, SEE DETAIL SHEET C1.5
- 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 C1.5
- 12 VERTICAL CURB AND GUTTER SECTION (SPILL), SEE DETAIL SHEET C1.5
- 13 DIRECTIONAL CURB RAMP WITHIN RADIUS, SEE DETAIL SHEET C1.5
- 14 PEDESTRIAN CURB RAMP FOR SIDEWALK OR TRAIL, SEE DETAIL SHEET C1.5

LEGEND

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

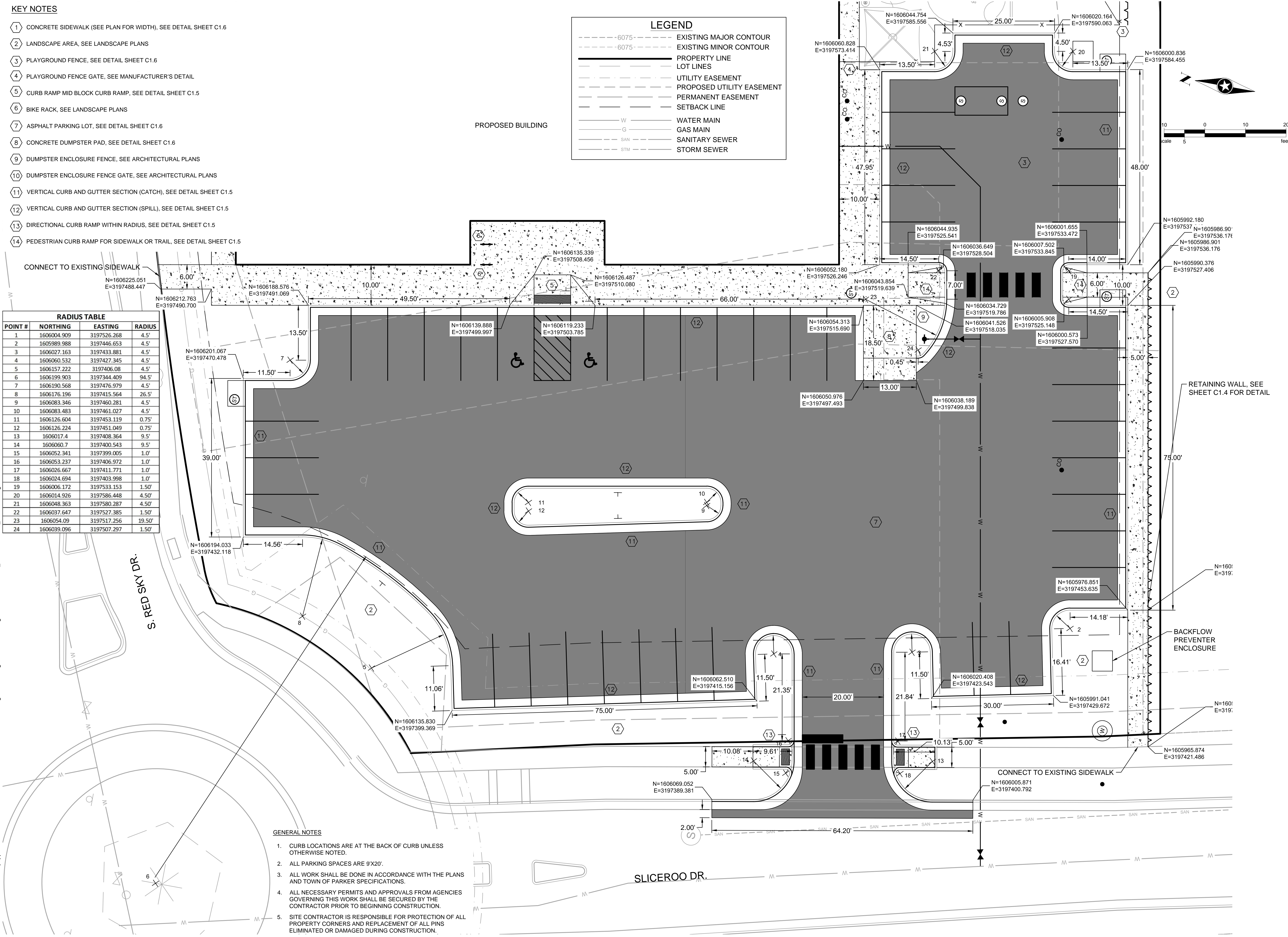
PROPOSED BUILDING



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	1606017.4	3197408.364	9.5'
14	1606060.7	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	1606054.09	3197517.256	19.50'
24	1606039.096	3197507.297	1.50'

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- GENERAL NOTES**
- CURB LOCATIONS ARE AT THE BACK OF CURB UNLESS OTHERWISE NOTED.
 - ALL PARKING SPACES ARE 9'X20'.
 - 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.

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SEH Project Checked By Drawn By

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

PARKING LOT SITE LAYOUT

1

C1.3

**NOT FOR
CONSTRUCTION**

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SEH Project: NHOAC 156217

Checked By: DJH

Drawn By: AMP

Project Status: TOWN REVIEW

TOWN REVIEW

TOWN REVIEW

Issue Date: 8/26/2020

1/22/2021

Revision Issue

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

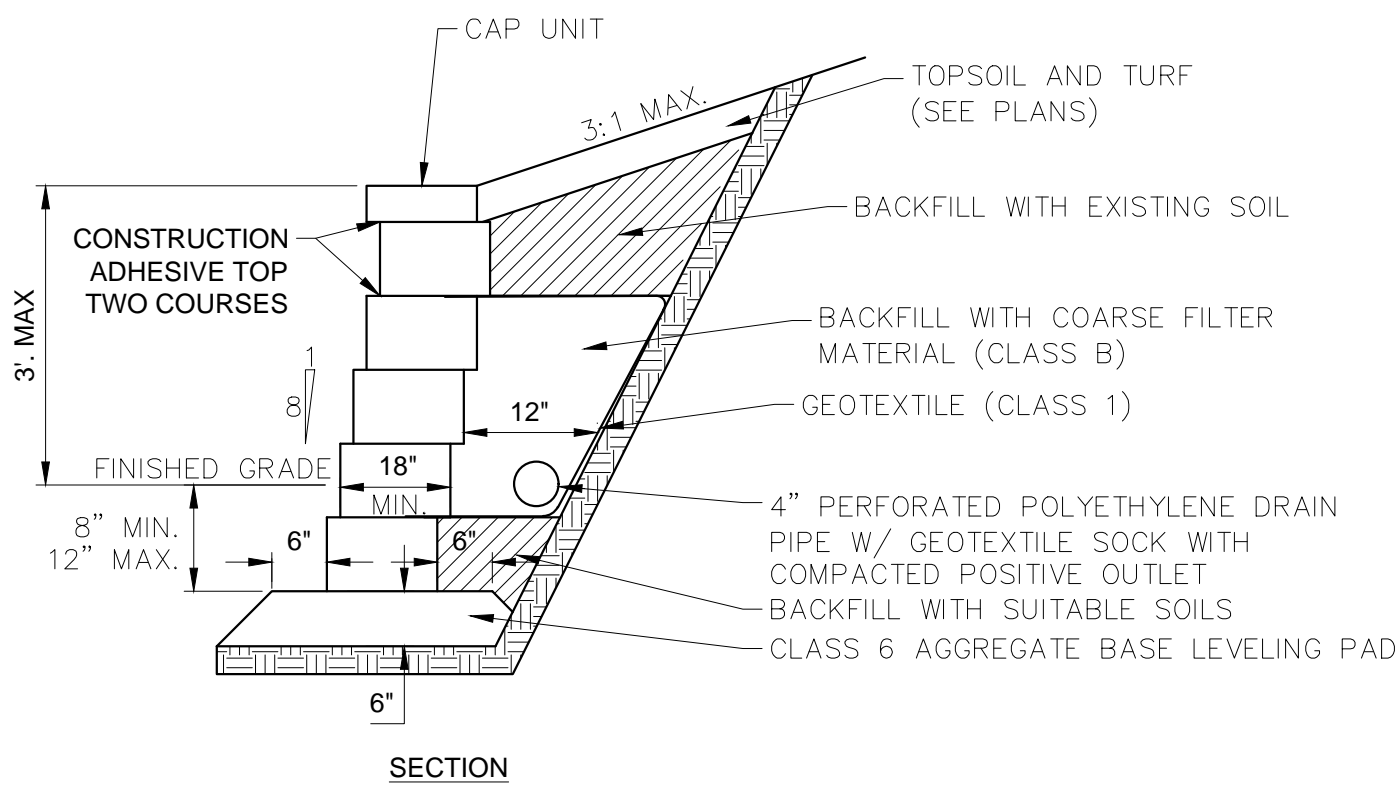
RETAINING WALL PLAN

1

C1.4

NOTES:

1. MAXIMUM EXPOSED HEIGHT NOT TO EXCEED 3 FEET. A SPECIFIC ENGINEERED DESIGN IS REQUIRED FOR WALLS WITH AN EXPOSED HEIGHT OVER 3 FEET.
2. FILL ALL VOID AREAS IN MODULAR BLOCK UNITS WITH COARSE FILTER MATERIAL (CLASS B) OR PEA GRAVEL AS APPROVED BY ENGINEER.
3. MODULAR BLOCK UNITS MUST HAVE INTERLOCKING LIP OR PIN CONNECTIONS.
4. RETAINING WALL LOCATION SHOWN ON PLANS.
5. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR PROPOSED MODULAR BLOCK UNITS.
6. OUTLET DRAIN PIPE TO A STORM SEWER CATCH BASIN OR MANHOLE OR THROUGH FACE OF WALL.
7. RETAINING WALL BLOCK TO BE SPLIT FACE AND MATCH BUILDING COLOR PALETTE.



NTS

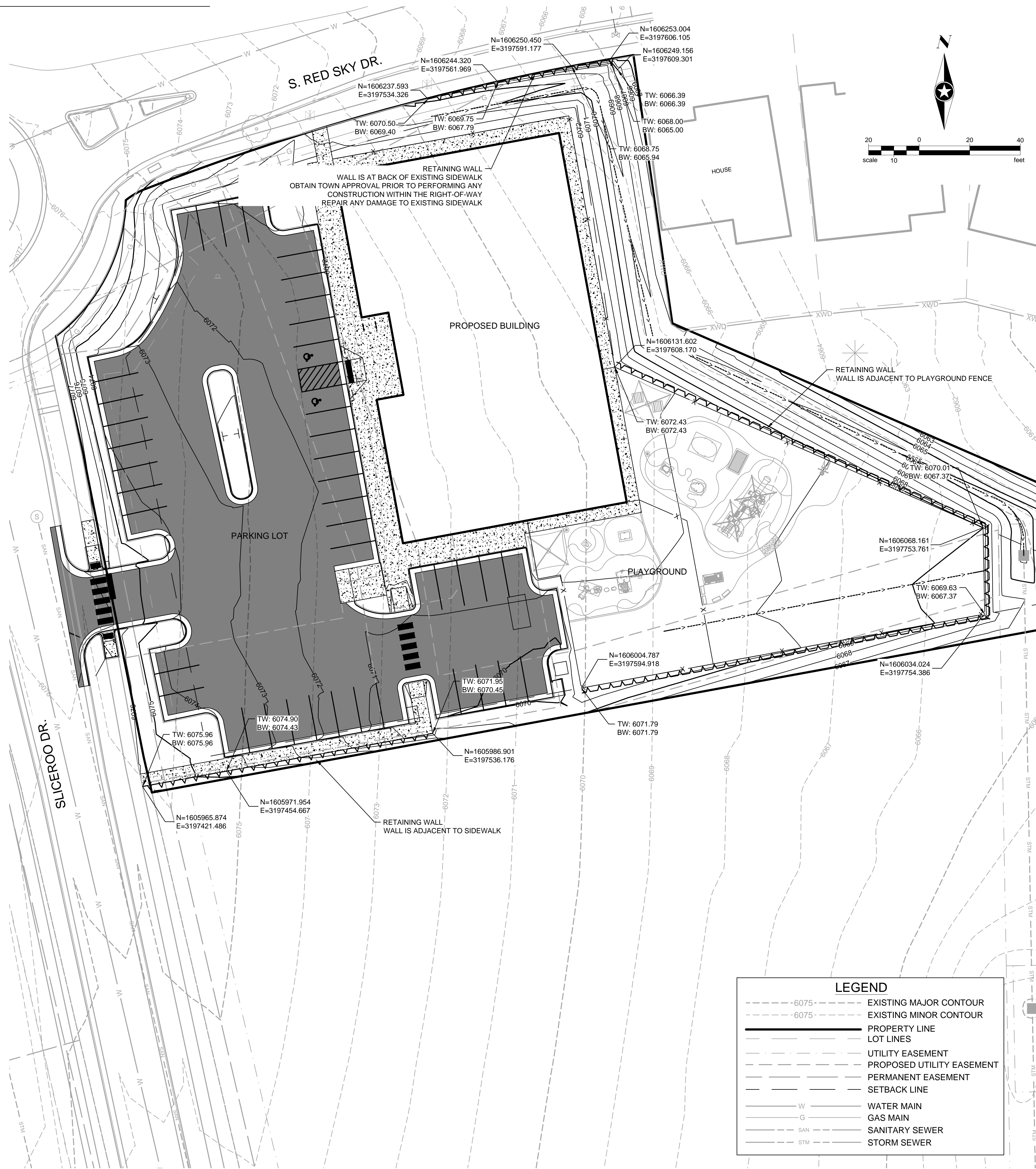
Revised:

Oct. 2011

SEH Plate No.

MISC-02

**RETAINING WALL DETAIL
GRAVITY WALL**



LEGEND	
- - - - -6075-	EXISTING MAJOR CONTOUR
- - - - -6075-	EXISTING MINOR CONTOUR
— — — — —	PROPERTY LINE
— — — — —	LOT LINES
— — — — —	UTILITY EASEMENT
— — — — —	PROPOSED UTILITY EASEMENT
— — — — —	PERMANENT EASEMENT
— — — — —	SETBACK LINE
— W — — —	WATER MAIN
— G — — —	GAS MAIN
— SAN — — —	SANITARY SEWER
— STM — — —	STORM SEWER

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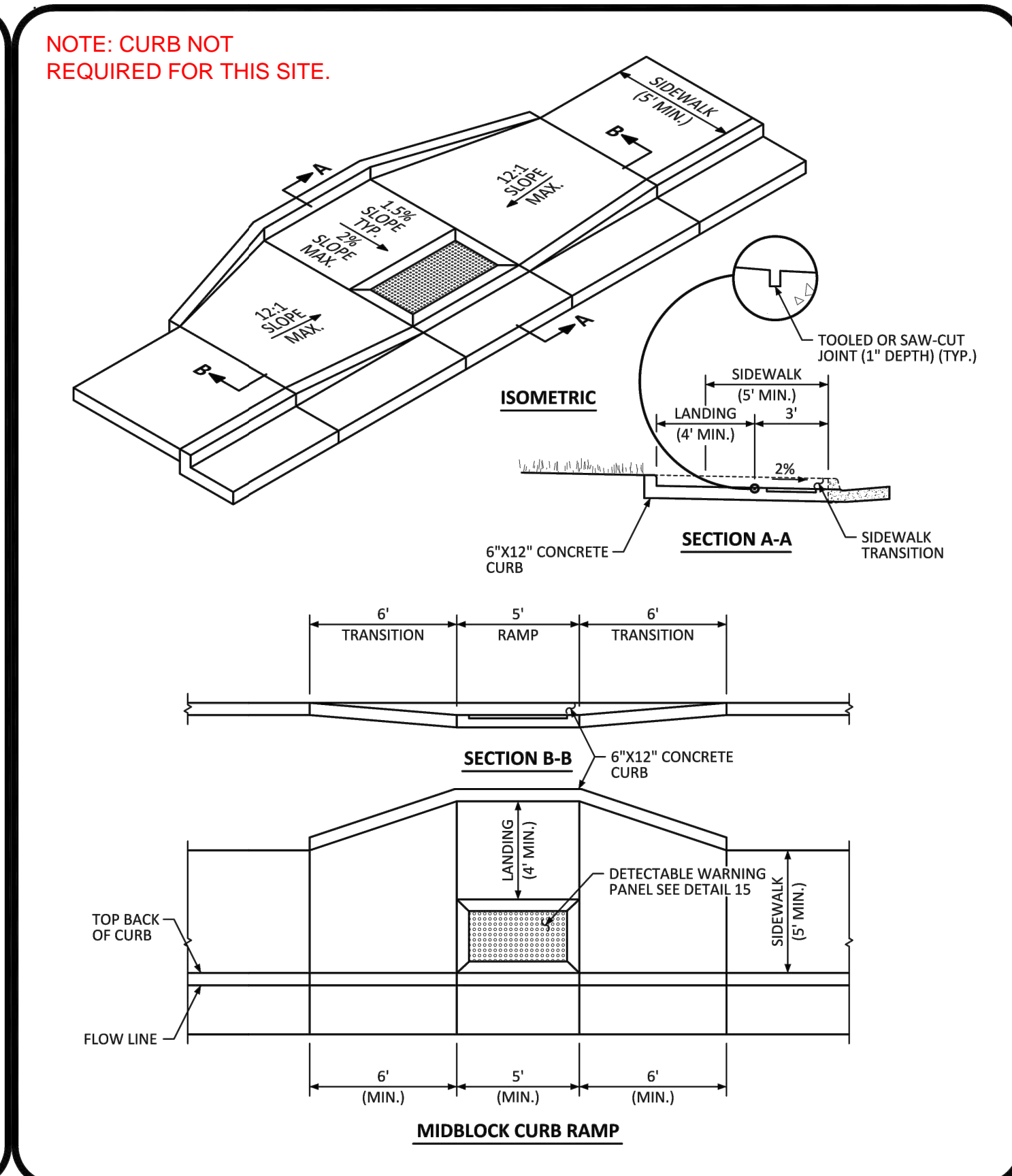
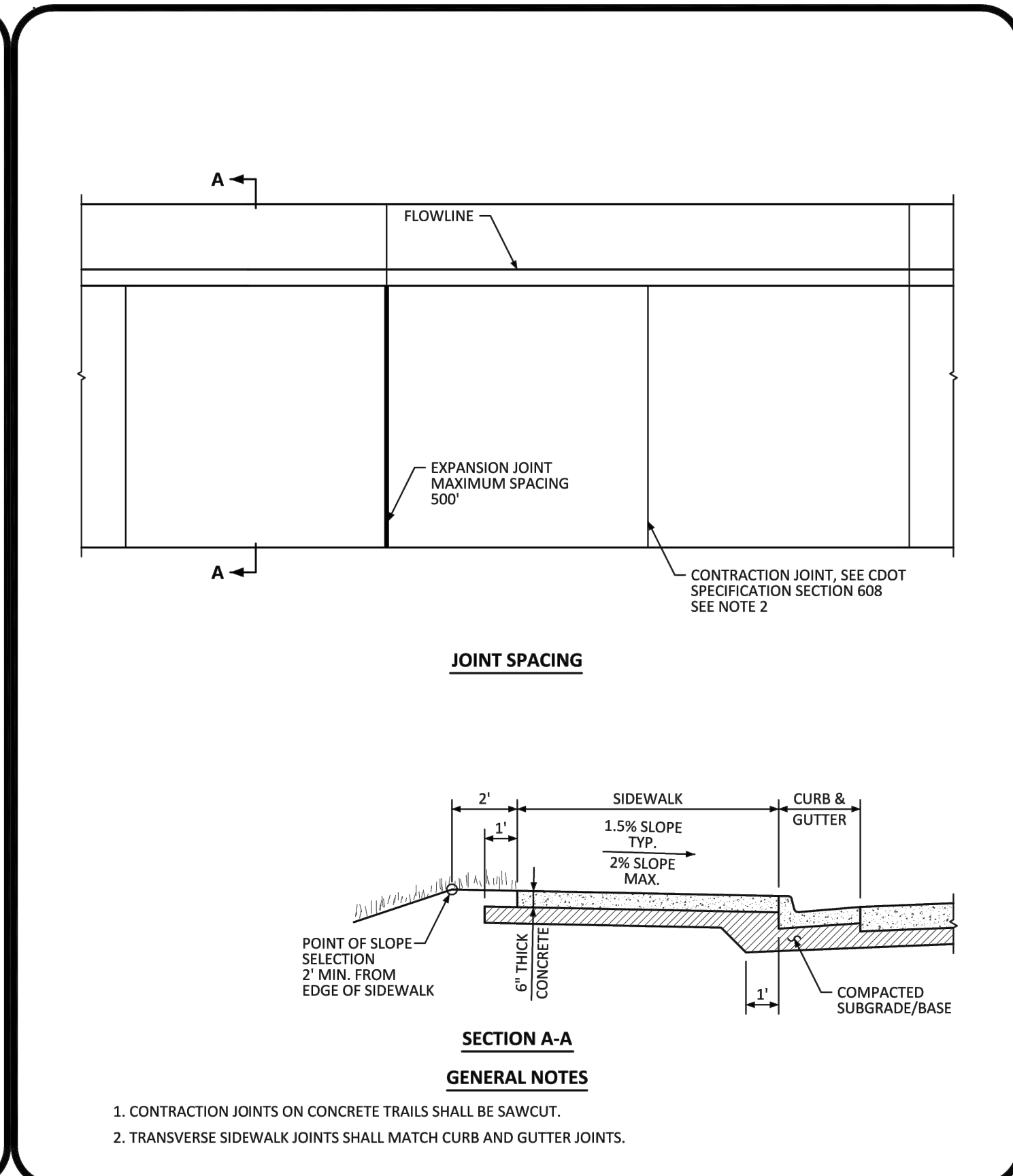
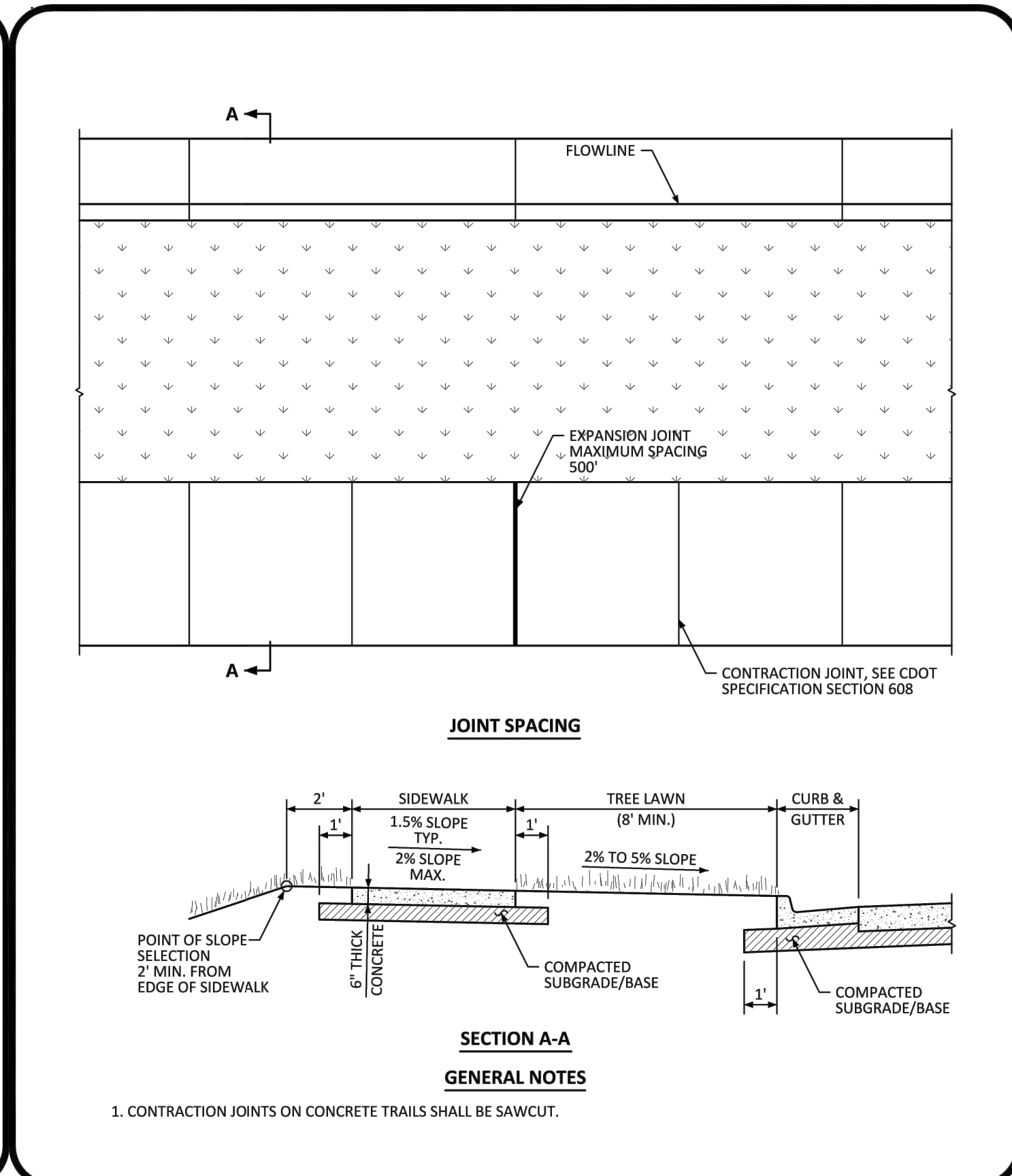
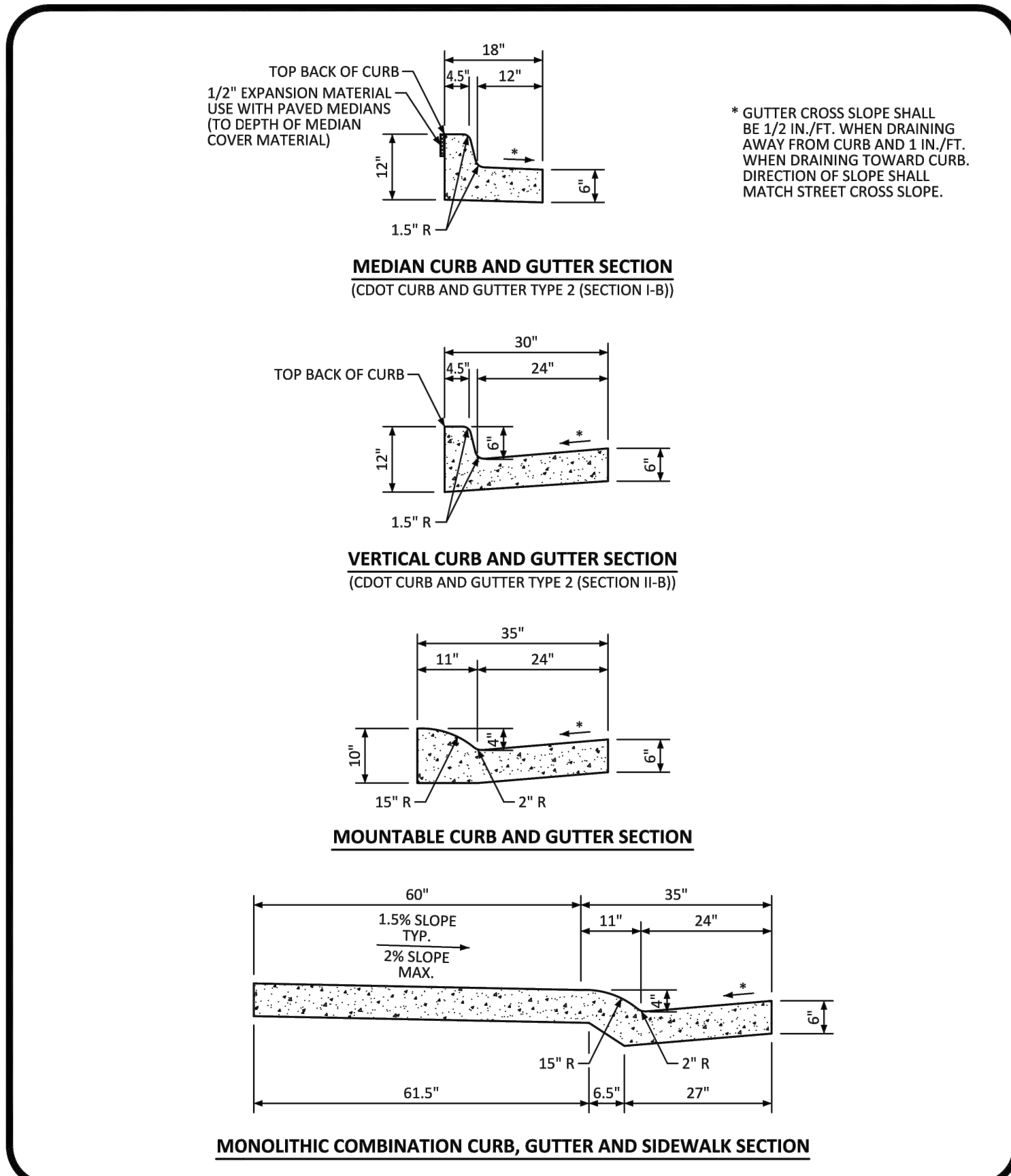
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Drawn By: AMP

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

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

CIVIL DETAILS
1
C1.5



PARKER COLORADO

CURB, GUTTER, AND SIDEWALK SECTIONS STANDARD DETAIL

DATE: DECEMBER 2016
DETAIL: 3
1 OF 1

PARKER COLORADO

DETACHED SIDEWALK STANDARD DETAIL

DATE: DECEMBER 2016
DETAIL: 4
1 OF 2

PARKER COLORADO

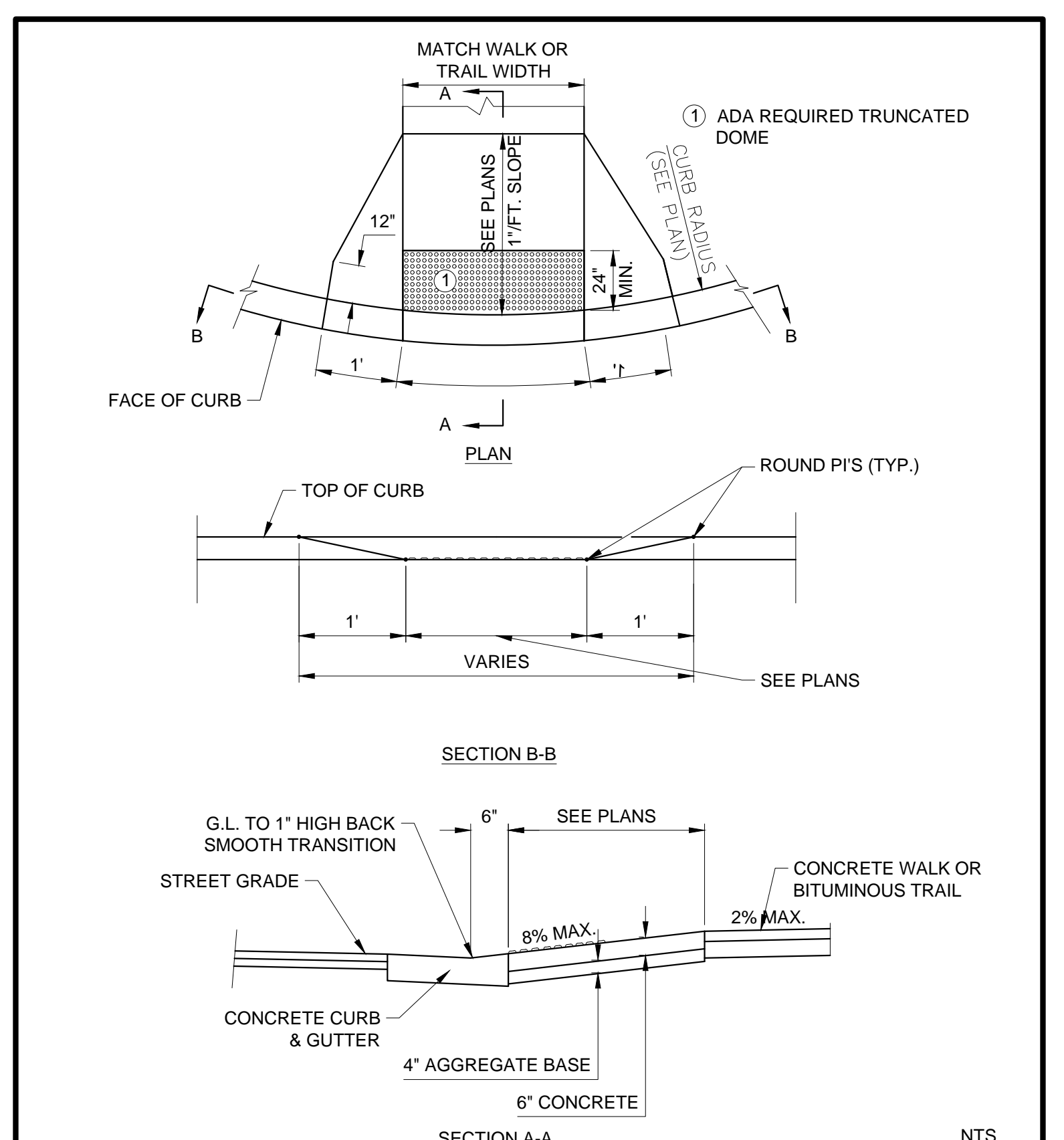
ATTACHED SIDEWALK STANDARD DETAIL

DATE: DECEMBER 2016
DETAIL: 4
2 OF 2

PARKER COLORADO

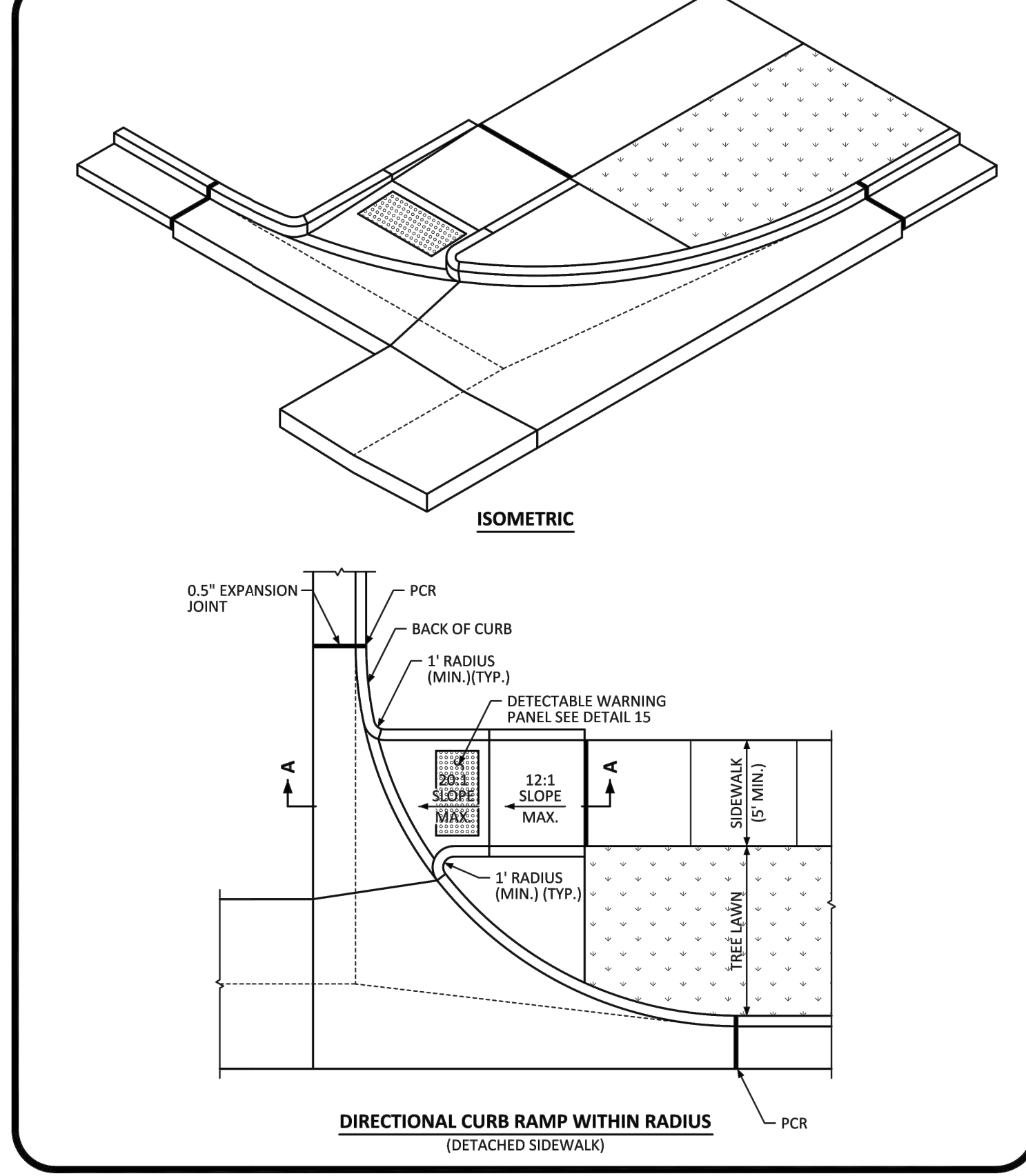
MIDBLOCK CURB RAMP LAYOUT STANDARD DETAIL

DATE: DECEMBER 2016
DETAIL: 17
2 OF 2



SEH

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



PARKER COLORADO

DIRECTIONAL CURB RAMP WITHIN RADIUS LAYOUT STANDARD DETAIL

DATE: DECEMBER 2016
DETAIL: 18
2 OF 2

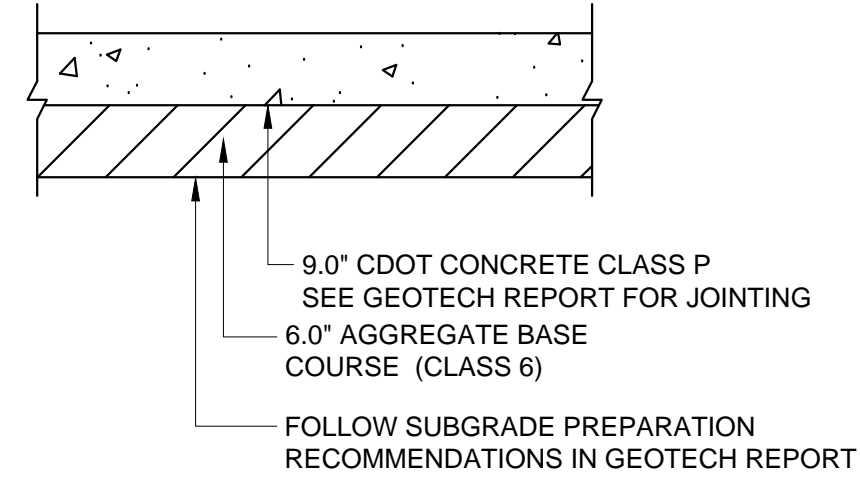
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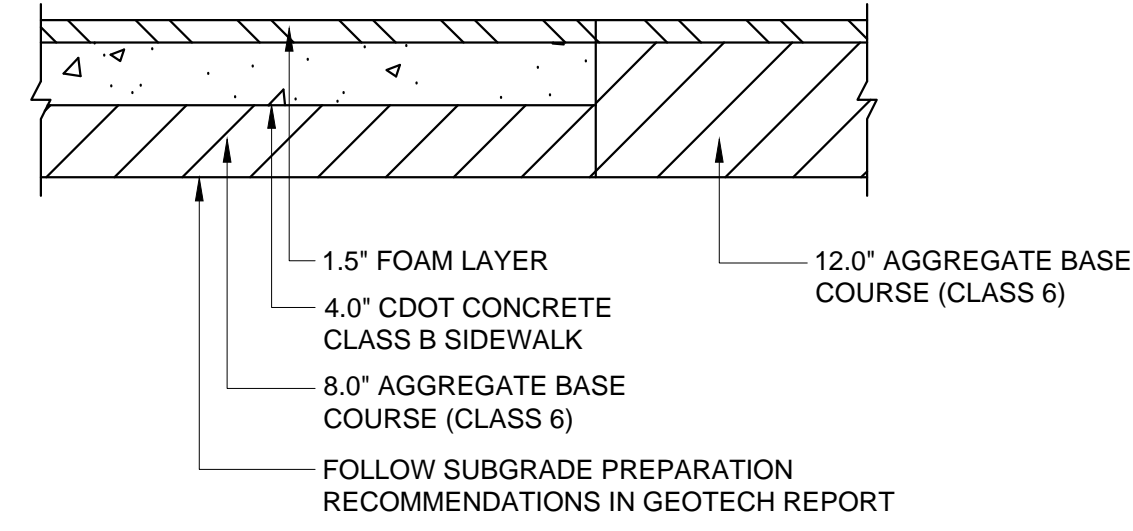


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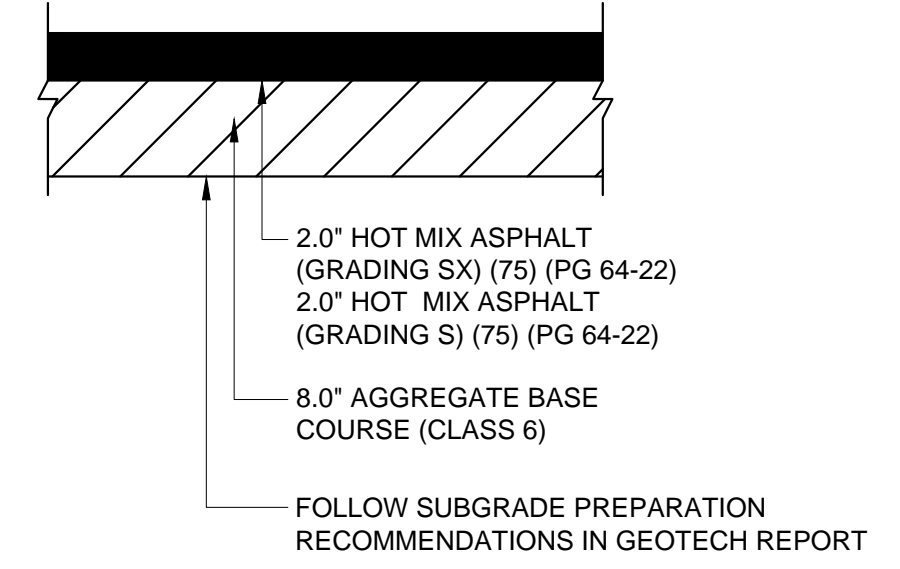
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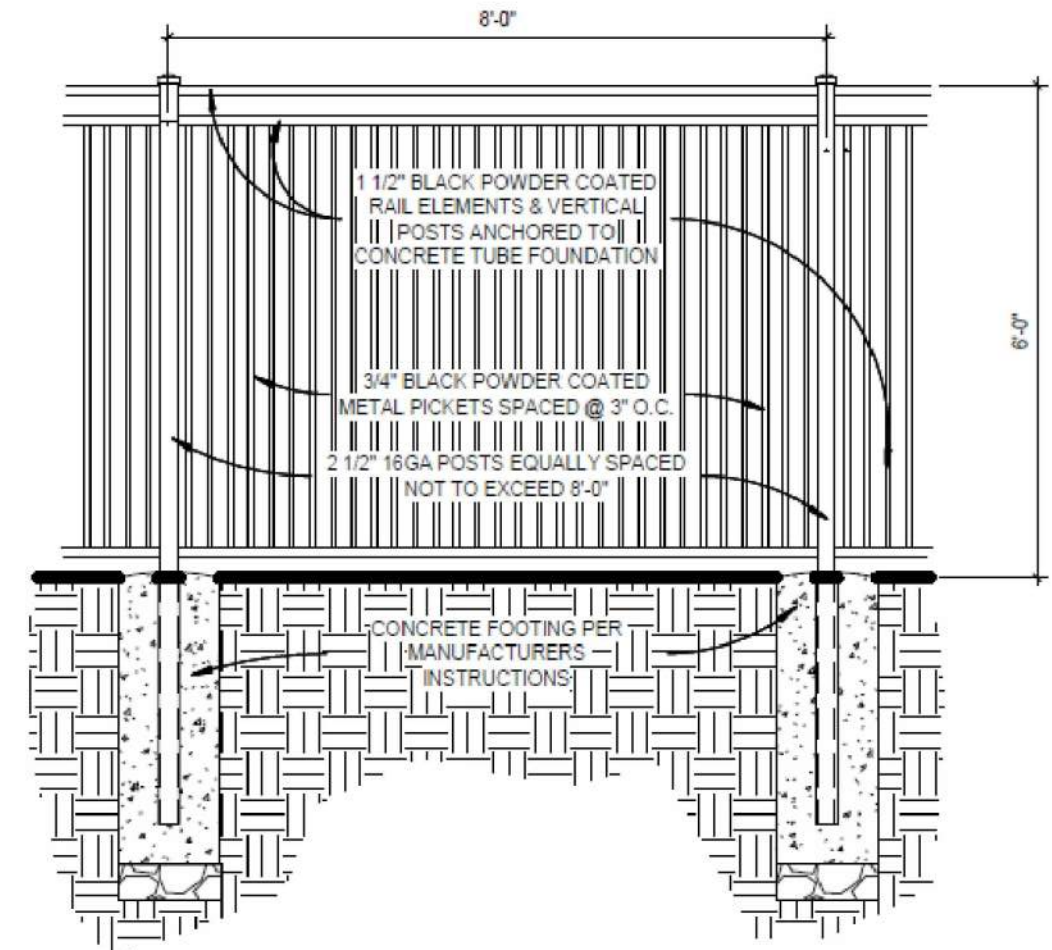
CONCRETE DUMPSTER PAD
NTS



PLAYGROUND SECTION
NTS



ASPHALT PARKING LOT
NTS



PLAYGROUND FENCE DETAIL
1/2" = 1'-0"

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NEW HORIZON ACADEMY -
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Checked By: DEH
Drawn By: AMP

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

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

CIVIL DETAILS

1

C1.6



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

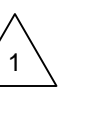
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Project Status: TOWN REVIEW Issue Date: 8/26/2020 TOWN REVIEW 1/22/2021

Revision Issue: 1 Description: TOWN COMMENTS Date: 1/22/21

GRADING PLAN



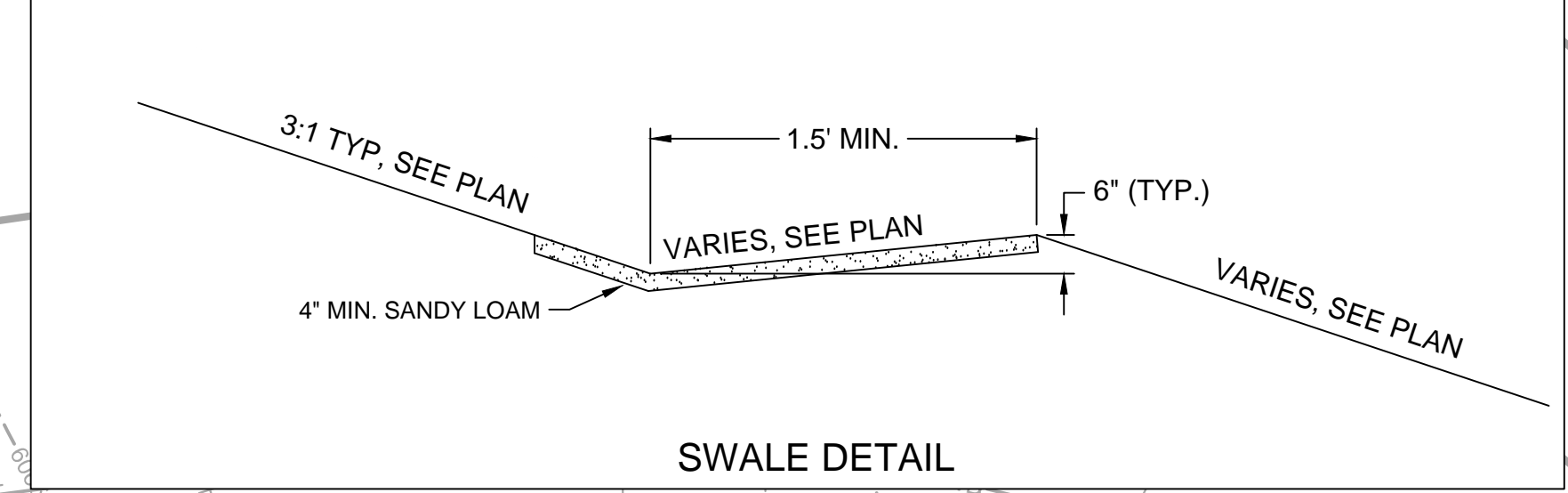
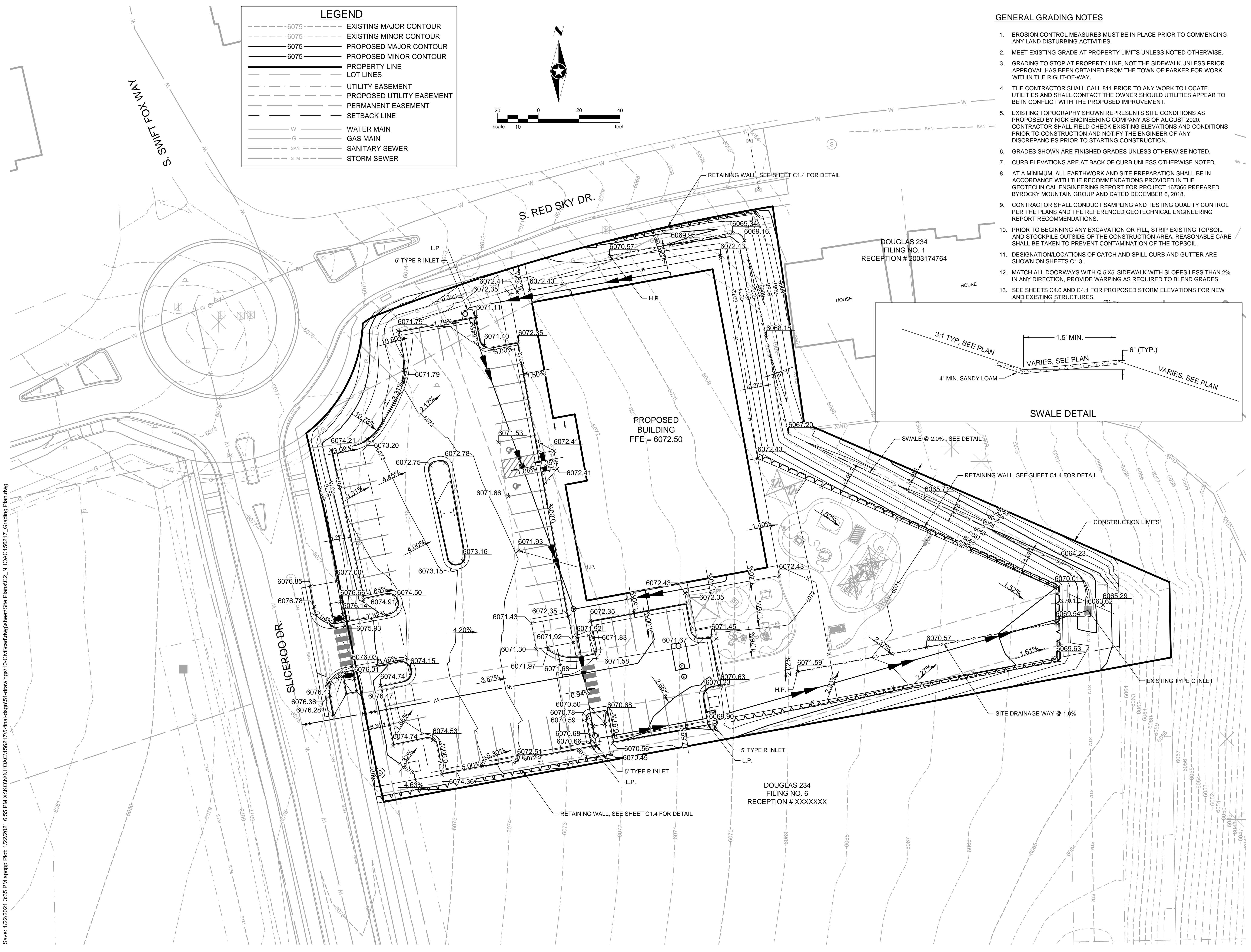
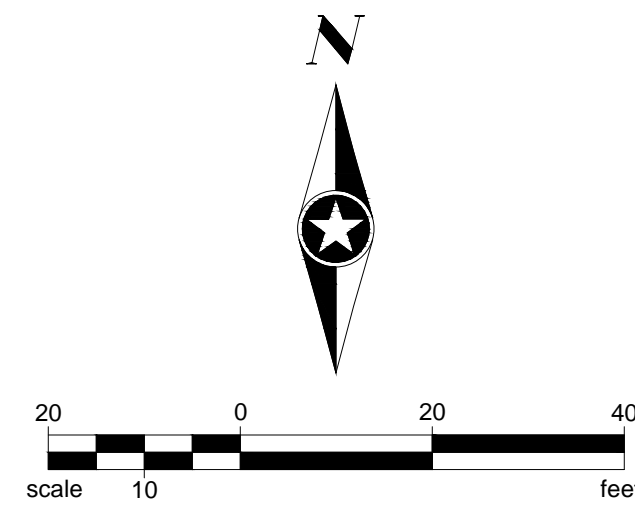
C2.0

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 Q 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.

LEGEND

- - - 6075 - - - EXISTING MAJOR CONTOUR
- - - 6075 - - - EXISTING MINOR CONTOUR
- - - 6075 - - - PROPOSED MAJOR CONTOUR
- - - 6075 - - - PROPOSED MINOR CONTOUR
- - - - - PROPERTY LINE
- - - - - LOT LINES
- - - - - UTILITY EASEMENT
- - - - - PROPOSED UTILITY EASEMENT
- - - - - PERMANENT EASEMENT
- - - - - SETBACK LINE
- - - - - WATER MAIN
- - - - - GAS MAIN
- - - - - SANITARY SEWER
- - - - - STORM SEWER



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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 AN ADDITIONAL TOWN OF PARKER GENERAL NOTES.

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

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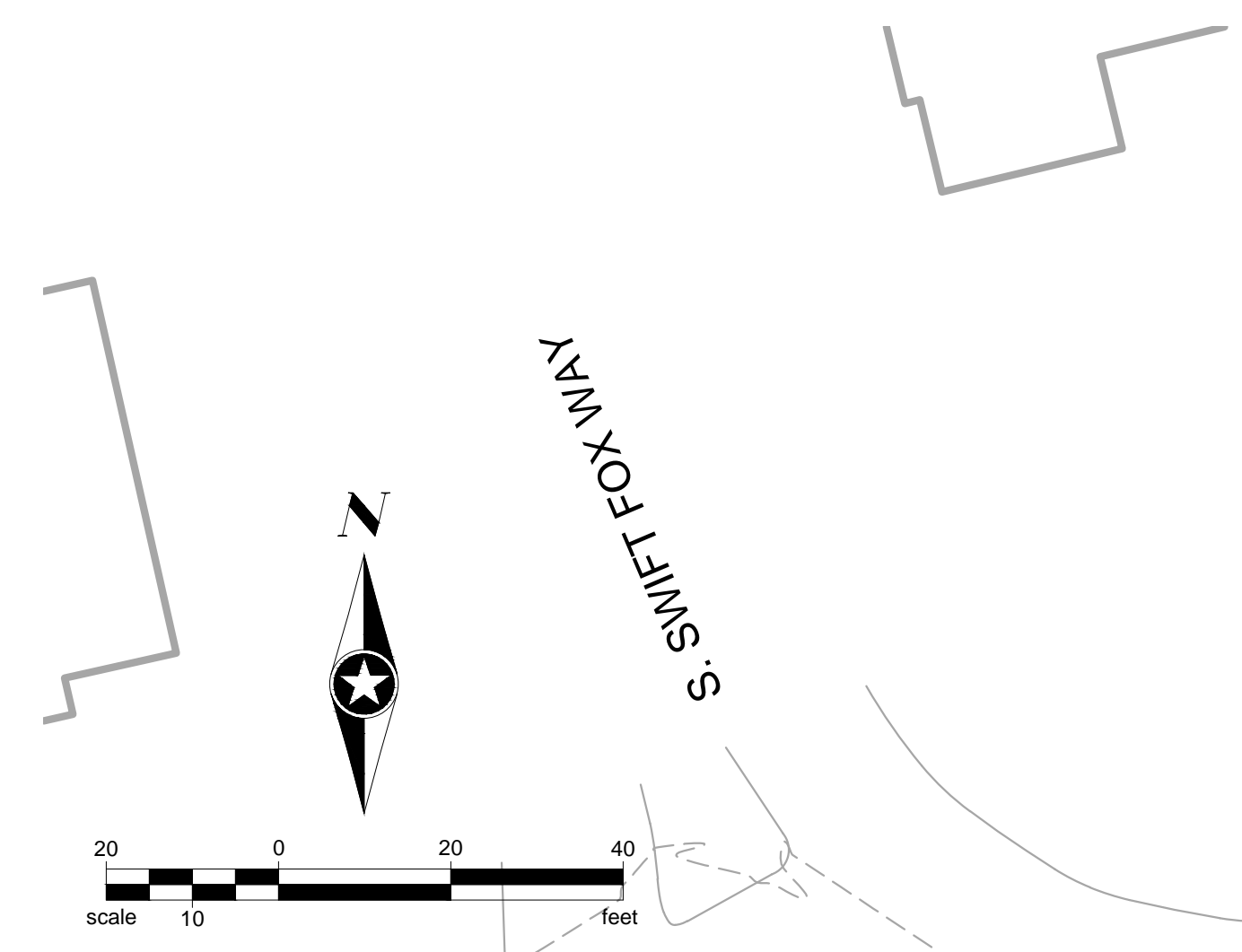
Project Status: TOWN REVIEW
Issue Date: 8/26/2021

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

INITIAL CBMP PLAN

1

C3.0



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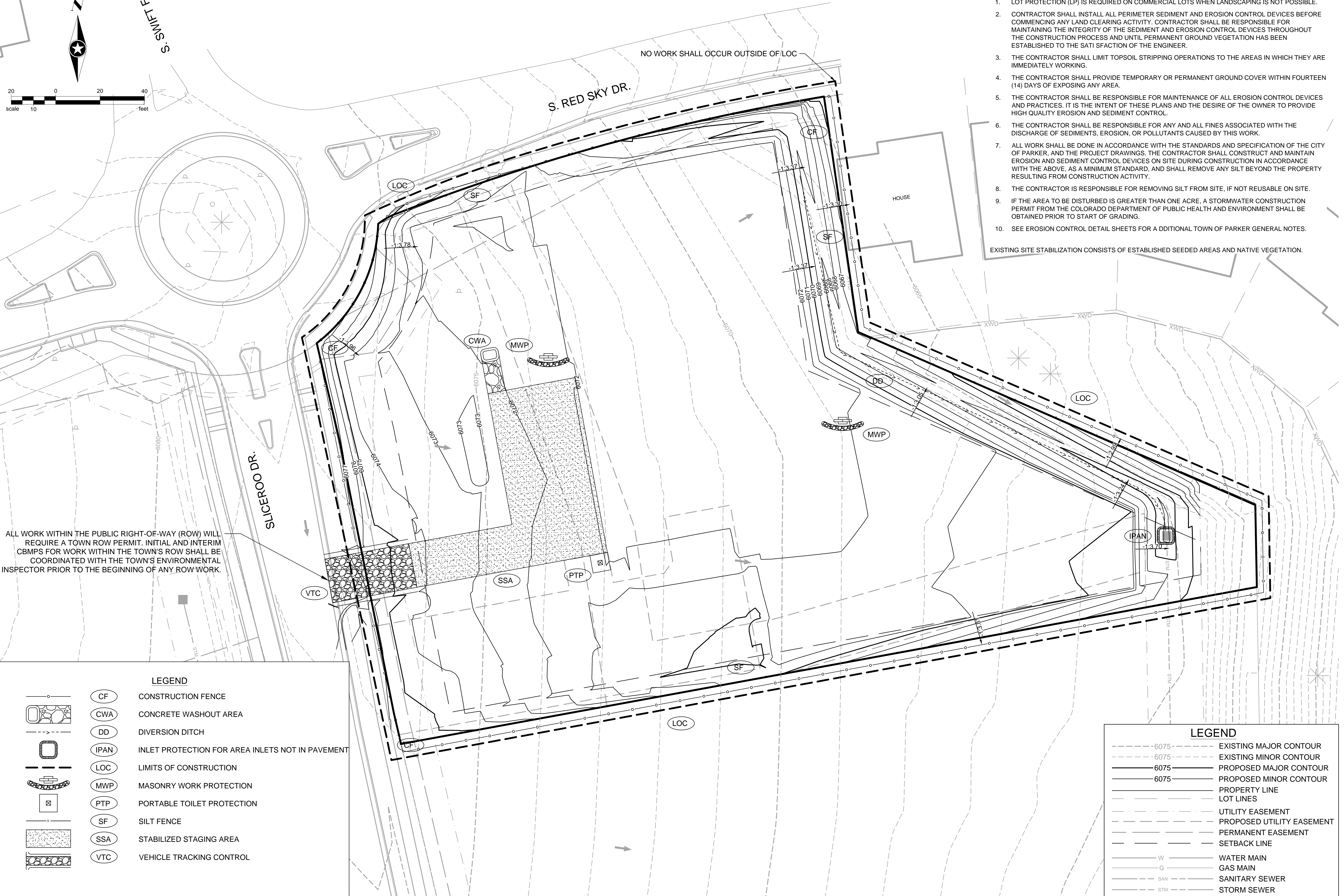
ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY (ROW) WILL REQUIRE A TOWN ROW PERMIT. INITIAL AND INTERIM CBMPS FOR WORK WITHIN THE TOWN'S ROW SHALL BE COORDINATED WITH THE TOWN'S ENVIRONMENTAL INSPECTOR PRIOR TO THE BEGINNING OF ANY ROW WORK.

LEGEND

	CF	CONSTRUCTION FENCE
	CWA	CONCRETE WASHOUT AREA
	DD	DIVERSION DITCH
	IPAN	INLET PROTECTION FOR AREA INLETS NOT IN PAVEMENT
	LOC	LIMITS OF CONSTRUCTION
	MWP	MASONRY WORK PROTECTION
	PTP	PORTABLE TOILET PROTECTION
	SF	SILT FENCE
	SSA	STABILIZED STAGING AREA
	VTC	VEHICLE TRACKING CONTROL

LEGEND

	6075-	EXISTING MAJOR CONTOUR
	6075-	EXISTING MINOR CONTOUR
	6075	PROPOSED MAJOR CONTOUR
	6075	PROPOSED MINOR CONTOUR
		PROPERTY LINE
		LOT LINES
		UTILITY EASEMENT
		PROPOSED UTILITY EASEMENT
		PERMANENT EASEMENT
		SETBACK LINE
	W	WATER MAIN
	G	GAS MAIN
	SAN	SANITARY SEWER
	STM	STORM SEWER





Building a Better World for All of Us®

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

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SEH Project: NHOAC 156217
Checked By: DJH
Drawn By: AMP

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

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

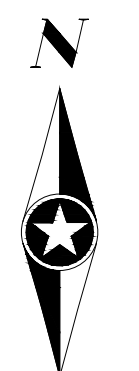
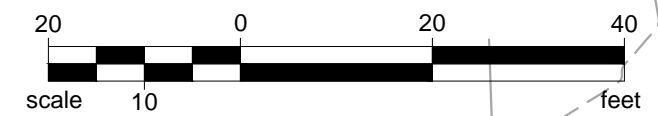
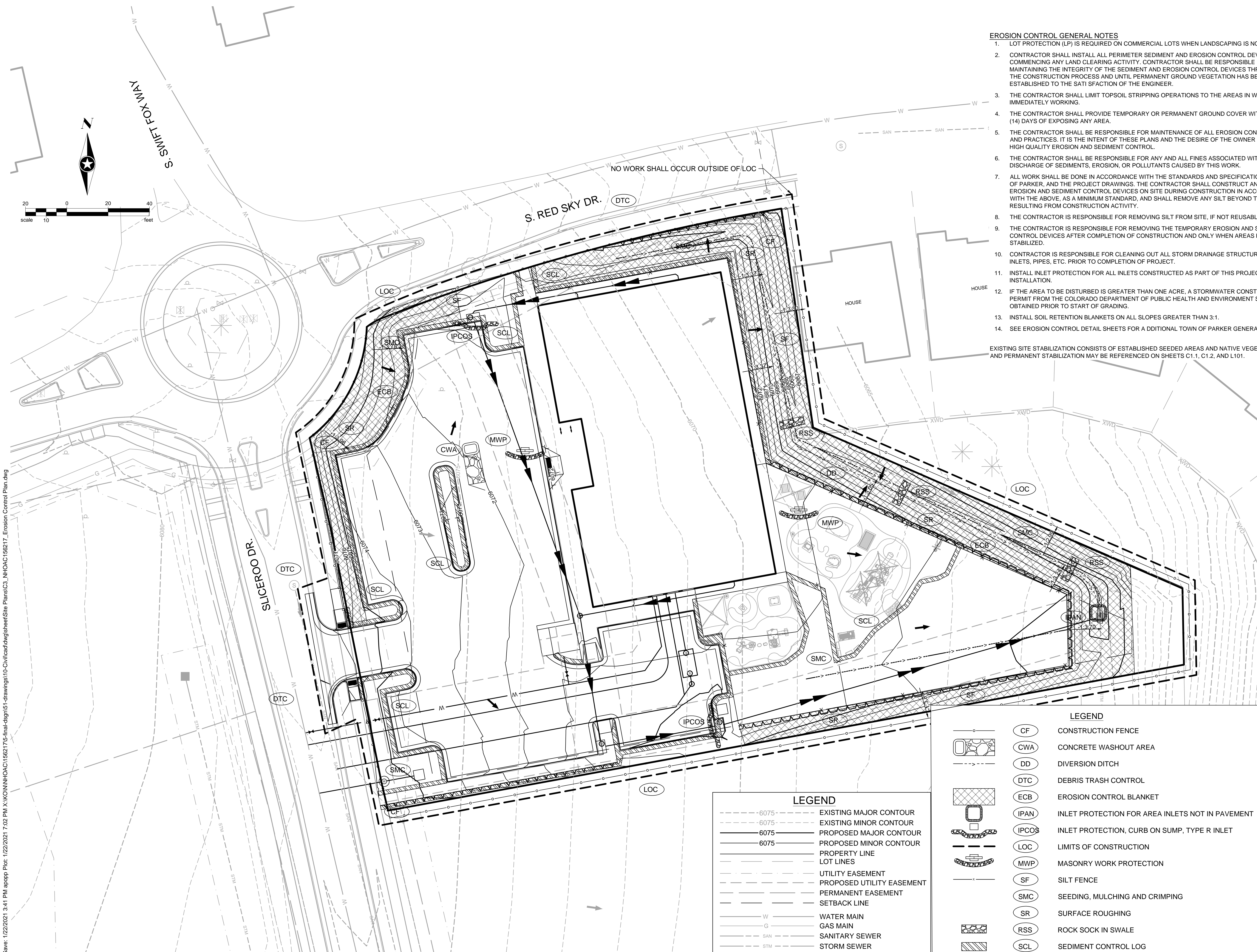
INTERM-FINAL CBMP PLAN

C3.1

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.
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.
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.
8. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING SILT FROM SITE, IF NOT REUSABLE ON SITE.
9. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING THE TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES AFTER COMPLETION OF CONSTRUCTION AND ONLY WHEN AREAS HAVE BEEN STABILIZED.
10. CONTRACTOR IS RESPONSIBLE FOR CLEANING OUT ALL STORM DRAINAGE STRUCTURES, INCLUDING INLETS, PIPES, ETC. PRIOR TO COMPLETION OF PROJECT.
11. INSTALL INLET PROTECTION FOR ALL INLETS CONSTRUCTED AS PART OF THIS PROJECT FOLLOWING INSTALLATION.
12. 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.
13. INSTALL SOIL RETENTION BLANKETS ON ALL SLOPES GREATER THAN 3:1.
14. SEE EROSION CONTROL DETAIL SHEETS FOR A DDITIONAL TOWN OF PARKER GENERAL NOTES.

EXISTING SITE STABILIZATION CONSISTS OF ESTABLISHED SEEDS AREAS AND NATIVE VEGETATION. FINAL AND PERMANENT STABILIZATION MAY BE REFERENCED ON SHEETS C1.1, C1.2, AND L101.



LEGEND table with symbols for contours, easements, utility lines, and erosion control devices.

LEGEND table with symbols for construction fence, concrete washout area, diversion ditch, debris trash control, erosion control blanket, inlet protection, limits of construction, masonry work protection, silt fence, seeding, surface roughing, rock sock, and sediment control log.

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

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SEH PROJECT NO. 158217
Checked By: DMH
Drawn By: AMP

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

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

CBMP DETAILS

C3.2

- NO CHANGES ARE TO BE MADE TO THIS DRAWING WITHOUT WRITTEN PERMISSION OF THE TOWN OF PARKER.
- 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.
 - 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.
 - 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.
 - 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.
 - 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.
 - 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.
 - THE EROSION CONTROL SUPERVISOR SHALL BE READILY AVAILABLE TO DISCUSS AND CORRECT ANY PROBLEMS THAT MAY ARISE RELATING TO GRADING, EROSION AND SEDIMENT CONTROL.
 - 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.
 - 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.
 - 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:
 - PHASING PLAN SHOWING CUT AND FILL VOLUMES AND LOCATIONS FOR EACH PHASE AND PROJECT TOTALS.
 - EARTHWORK QUANTITY PLAN SHOWING CUT AND FILL VOLUMES AND LOCATIONS FOR EACH PHASE AND PROJECT TOTALS.
 - BMP PLAN SHOWING SPECIFIC EROSION AND SEDIMENT CONTROLS FOR EACH PHASE.

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

	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.

	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

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

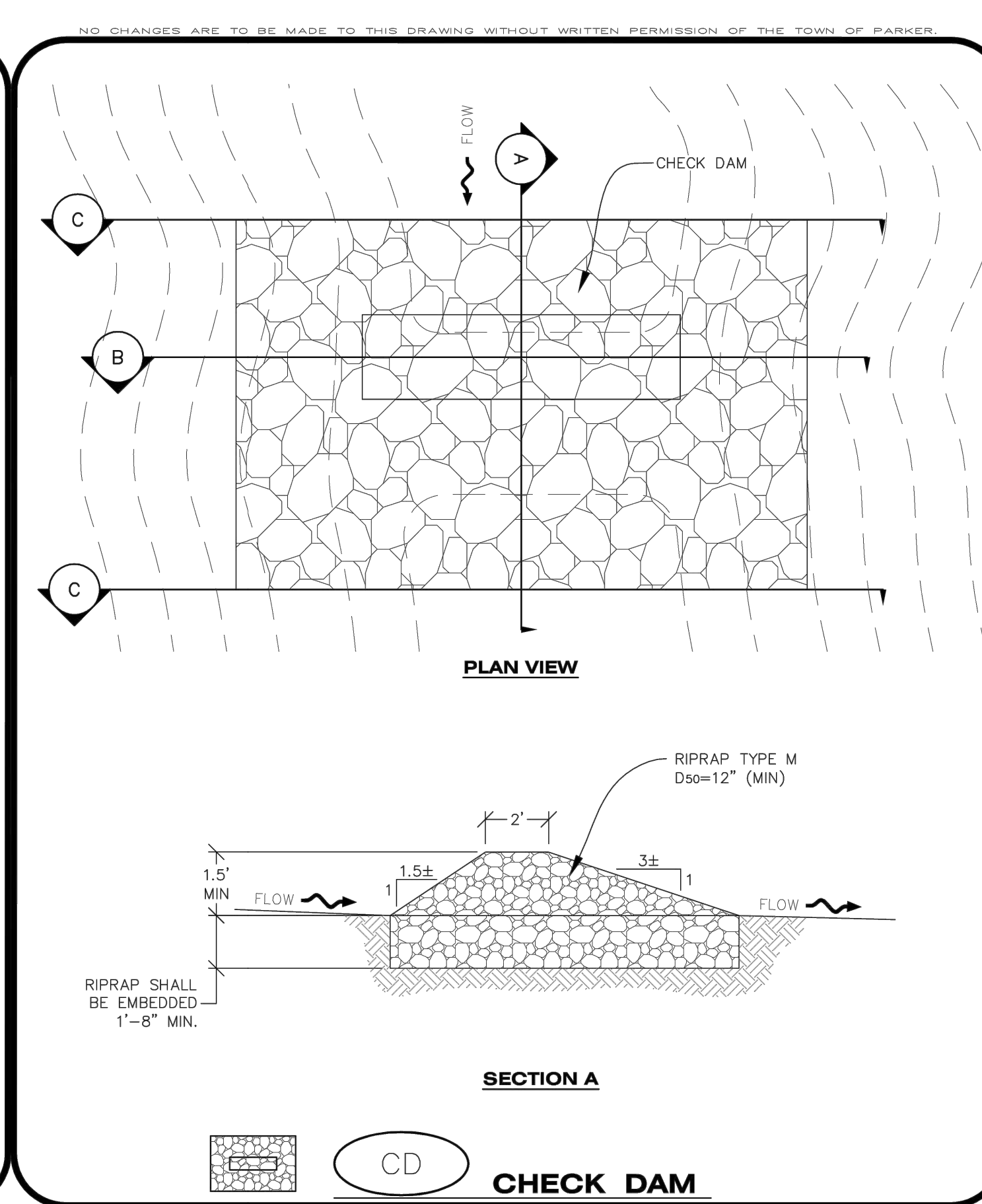
	CD	CHECK DAM
	CF	CONSTRUCTION FENCE
	CP	CULVERT PROTECTION
	CWA	CONCRETE WASHOUT AREA
	D	DEWATERING
	DD	DIVERSION DITCH
	DP	DETENTION POND PROTECTION
	DTC	DEBRIS TRASH CONTROL
	ECB	EROSION CONTROL BLANKET
	IPAN	INLET PROTECTION FOR AREA INLETS NOT IN PAVEMENT
	IPAP	INLET PROTECTION FOR AREA INLETS IN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

CBMP LEGEND 1 OF 4 Oct. 2013

CBMP LEGEND 3 OF 3 Oct. 2013

CBMP LEGEND 2 OF 3 Oct. 2013

CBMP LEGEND 1 OF 3 Oct. 2013



- NO CHANGES ARE TO BE MADE TO THIS DRAWING WITHOUT WRITTEN PERMISSION OF THE TOWN OF PARKER.
- 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).
 - ALL SOIL-DISTURBING ACTIVITIES ASSOCIATED WITH THE GRADING PERMIT HAVE PERMANENTLY CEASED.
 - ALL CBMPs HAVE BEEN PROPERLY REMOVED FROM THE SITE.
 - EROSION IS NEGLIGIBLE, IF EVEN PRESENT.
 - 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.
 - WEEDS REPRESENT NO MORE THAN TEN PERCENT (10%) OF THE TOTAL VEGETATION ON SITE.
 - NO WEEDS ARE PRESENT FROM LIST A OF THE COLORADO NOXIOUS WEED LIST, AS AMENDED.
 - THE SITE IS PREDOMINANTLY FREE OF WEEDS FROM LIST B OF THE COLORADO NOXIOUS WEED LIST, AS AMENDED.
 - WEEDS ARE EVENLY DISTRIBUTED THROUGHOUT THE SITE WITH NO LARGE CONCENTRATIONS PRESENT.
 - 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.
 - 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.
 - 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.
 - 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.
 - 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.
- 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.
 - 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.
 - VEHICLE AND EQUIPMENT DEGREASING IS PROHIBITED ON THE JOB SITE.
 - 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.
 - HYDRAULIC SEEDING AND/OR HYDRAULIC MULCHING ARE ONLY ALLOWED IN AREAS UNDER TEMPORARY OR PERMANENT IRRIGATION OR FOR THE PURPOSE OF TEMPORARY SOIL STABILIZATION.
 - 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.
 - GRADING SECURITY RELEASE REQUIREMENTS:
 - DEVELOPABLE PROPERTY: IN ORDER FOR THE GRADING SECURITY TO BE RELEASED, THE SITE MUST MEET ITEMS A-H OR ITEM I (BELOW).
 - ALL SOIL-DISTURBING ACTIVITIES ASSOCIATED WITH THE GRADING PERMIT HAVE PERMANENTLY CEASED.
 - UNIFORM PERENNIAL VEGETATION COVER HAS BEEN ESTABLISHED WITH AN INDIVIDUAL PLANT DENSITY OF AT LEAST SEVENTY PERCENT (70%) OF PRE-DISTURBANCE LEVELS.
 - ALL CBMPs HAVE BEEN PROPERLY REMOVED FROM THE SITE.
 - 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.
 - WEEDS REPRESENT NO MORE THAN FIFTY PERCENT (50%) OF THE TOTAL VEGETATION ON THE SITE.
 - NO WEEDS ARE PRESENT FROM LIST A OF THE COLORADO NOXIOUS WEED LIST, AS AMENDED.
 - THE SITE IS PREDOMINANTLY FREE OF WEEDS FROM LIST B OF THE COLORADO NOXIOUS WEED LIST, AS AMENDED.
 - WEEDS ARE EVENLY DISTRIBUTED THROUGHOUT THE SITE WITH NO LARGE CONCENTRATIONS PRESENT.
 - 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.

- NO CHANGES ARE TO BE MADE TO THIS DRAWING WITHOUT WRITTEN PERMISSION OF THE TOWN OF PARKER.
- 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.
 - 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.
 - 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.
 - 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.
 - 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.
 - ALL TRASH RECEPTACLES ON SITE SHALL BE EMPTIED AT A FREQUENCY AS TO ENSURE THAT THE TRASH REMAINS CONFINED TO THE RECEPTACLE.
 - ALL LOOSE TRASH AND LITTER ASSOCIATED WITH THE PROJECT MUST BE REMOVED AND PROPERLY DISCARDED ON A DAILY BASIS.
 - 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.
 - 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.
 - 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.
 - NO PERMANENT SLOPES GREATER THAN 3:1 ARE ALLOWED.
 - 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.
 - 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.
 - 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.

CBMP LEGEND 1 OF 3 Oct. 2013

CBMP LEGEND 4 OF 4 Oct. 2013

CBMP LEGEND 3 OF 4 Oct. 2013

CBMP LEGEND 2 OF 4 Oct. 2013

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CONSTRUCTION

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

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SEH Project
Checked By
Drawn By

NHOAC 156217
DHH
AMP

Project Status
TOWN REVIEW
TOWN REVIEW

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

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

CBMP DETAILS

C3.3

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

CONSTRUCTION FENCE INSTALLATION NOTES

1. THE CONSTRUCTION FENCE SHALL BE SECURELY FASTENED TO EACH POST OR APPROVED EQUAL.

CONSTRUCTION FENCE INSPECTION AND MAINTENANCE NOTES

1. THE EROSION CONTROL SUPERVISOR SHALL REGULARLY INSPECT THE CONSTRUCTION FENCE AND MAKE ANY NECESSARY REPAIRS.
2. CONSTRUCTION FENCE SHALL BE REPAIRED WHEN THE FENCING MATERIAL FALLS OUT OF COMPLIANCE WITH THE NOTES AND DETAILS.

CONSTRUCTION FENCE

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CBMP CONSTRUCTION BEST MANAGEMENT PRACTICES

CF 1 OF 2
Oct. 2013

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

CHECK DAM INSTALLATION NOTES

1. SEE PLAN VIEW FOR LOCATION(S) OF CHECK DAMS.
2. CHECK DAMS SHOWN ON CBMP PLAN SHALL BE INSTALLED WHEN DIRECTED BY THE TOWN'S INSPECTOR.
3. RIPRAP UTILIZED FOR CHECK DAMS SHALL HAVE A D50 MEDIAN STONE SIZE OF 12".
4. RIPRAP PAD SHALL BE TRENCHED INTO THE GROUND A MINIMUM OF 1'-8".
5. THE MAXIMUM SPACING BETWEEN CHECK DAMS SHOULD BE SUCH THAT THE BOTTOM OF THE UPSTREAM DAM IS AT THE SAME ELEVATION AS THE TOP OF THE DOWNSTREAM DAM AS SHOWN IN THE DETAIL.

CHECK DAM INSPECTION AND MAINTENANCE NOTES

1. THE EROSION CONTROL SUPERVISOR SHALL REGULARLY INSPECT THE CHECK DAMS.
2. ACCUMULATED SEDIMENT SHALL BE REMOVED ONCE SEDIMENT HAS REACHED A DEPTH EQUAL TO 1/2 THE HEIGHT OF THE CREST OR AS OTHERWISE DIRECTED BY THE TOWN'S INSPECTOR.
3. CHECK DAMS 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.
4. WHEN CHECK DAMS ARE REMOVED, THE TOWN'S INSPECTOR MAY REQUIRE EXCAVATIONS TO BE FILLED WITH SUITABLE COMPACTED TOPSOIL AND ANY DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION, MAINTENANCE, AND/OR REMOVAL OF THE CHECK DAMS BE ROUGHENED, SEEDED, MULCHED, AND CRIMPED PER THE TOWN'S SPECIFICATIONS (SEE DETAIL SMC).
5. IN SOME INSTANCES, CHECK DAMS MAY REMAIN IN PLACE PERMANENTLY.

CHECK DAM

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CBMP CONSTRUCTION BEST MANAGEMENT PRACTICES

CF 2 OF 2
Oct. 2013

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SECTION C

NOTE: SECTION C IS LOCATED IMMEDIATELY UPSTREAM AND DOWNSTREAM OF THE CHECK DAM, THEREFORE NO ROCK IS SHOWN WITHIN THE CHANNEL FLOW AREA.

L = THE DISTANCE SUCH THAT POINT A AND B ARE OF EQUAL ELEVATION.

SPACING BETWEEN CHECK DAMS

CHECK DAM

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CBMP CONSTRUCTION BEST MANAGEMENT PRACTICES

CD 3 OF 3
Oct. 2013

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SECTION B

SECTION C

SECTION C

NOTE: SECTION C IS LOCATED IMMEDIATELY UPSTREAM AND DOWNSTREAM OF THE CHECK DAM, THEREFORE NO ROCK IS SHOWN WITHIN THE CHANNEL FLOW AREA.

L = THE DISTANCE SUCH THAT POINT A AND B ARE OF EQUAL ELEVATION.

SPACING BETWEEN CHECK DAMS

CHECK DAM

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CBMP CONSTRUCTION BEST MANAGEMENT PRACTICES

CD 2 OF 3
Oct. 2013

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CONCRETE WASHOUT AREA INSTALLATION NOTES

1. CONCRETE WASHOUT AREAS SHALL BE INSTALLED PRIOR TO ANY CONCRETE PLACEMENT ON SITE.
2. A VEHICLE TRACKING CONTROL PAD IS REQUIRED AT THE ACCESS POINT TO ALL CONCRETE WASHOUT AREAS WHEN NO OTHER VTC PAD EXISTS IN BETWEEN THE CWA AND THE ROADWAY.
3. IF GROUNDWATER IS ENCOUNTERED WHEN DIGGING THE PIT, A NEW LOCATION SHOULD BE SELECTED. IF NO OTHER LOCATION CAN BE FOUND, A ONE-PIECE IMPERVIOUS LINER SHALL BE REQUIRED ALONG THE BOTTOM AND SIDES OF THE SUBSURFACE PIT.

CONCRETE WASHOUT AREA INSPECTION AND MAINTENANCE NOTES

1. THE EROSION CONTROL SUPERVISOR SHALL REGULARLY INSPECT THE CONCRETE WASHOUT AREA.
2. CONCRETE WASHOUT MATERIALS SHALL BE REMOVED BEFORE ITS CAPACITY HAS BEEN REACHED.
3. CONCRETE WASHOUT AREAS SHALL BE ENLARGED AS NECESSARY TO MAINTAIN CAPACITY FOR WASTED CONCRETE AND ASSOCIATED WASH WATER.
4. CONCRETE WASHOUT WATER, WASTED PIECES OF CONCRETE AND ALL OTHER DEBRIS IN THE SUBSURFACE PIT SHALL BE TRANSPORTED FROM THE JOB SITE AS NECESSARY TO ENSURE ADEQUATE CAPACITY.
5. CONCRETE WASHOUT AREAS SHALL REMAIN IN PLACE UNTIL ALL CONCRETE FOR THE PROJECT IS PLACED.
6. WHEN CONCRETE WASHOUT AREAS ARE REMOVED, THE TOWN'S INSPECTOR MAY REQUIRE EXCAVATIONS TO BE FILLED WITH SUITABLE COMPACTED BACKFILL AND TOPSOIL, ANY DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION, MAINTENANCE, AND/OR REMOVAL OF THE CONCRETE WASHOUT AREAS SHALL BE ROUGHENED, SEEDED, MULCHED, AND CRIMPED PER THE TOWN'S SPECIFICATIONS (SEE DETAIL SMC).

CONCRETE WASHOUT AREA

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CBMP CONSTRUCTION BEST MANAGEMENT PRACTICES

CWA 2 OF 2
Oct. 2013

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CULVERT PROTECTION (INLET) INSTALLATION NOTES

1. SEE PLAN VIEW FOR LOCATION(S) OF CULVERT PROTECTION (INLET).
2. ROCK SOCK SHALL BE CONSTRUCTED ACCORDING TO THE DETAIL (SEE DETAIL RS).
3. ROCK SOCK SHALL BE APPROXIMATELY 12" IN DIAMETER.
4. ROCK SOCK SHALL EXTEND ABOVE THE FLOW LINE ELEVATION ON BOTH SIDES OF THE CULVERT END SECTION.

CULVERT PROTECTION (INLET) INSPECTION AND MAINTENANCE NOTES

1. THE EROSION CONTROL SUPERVISOR SHALL REGULARLY INSPECT THE CULVERT PROTECTION (INLET).
2. AT A MINIMUM, ACCUMULATED SEDIMENT SHALL BE REMOVED ONCE SEDIMENT HAS REACHED A DEPTH EQUAL TO 1/2 THE HEIGHT OF THE ROCK SOCK.
3. CULVERT PROTECTION (INLET) IS TO 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.
4. WHEN THE CULVERT INLET PROTECTION IS REMOVED, THE TOWN'S INSPECTOR MAY REQUIRE ANY DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION, MAINTENANCE, AND/OR REMOVAL OF THE CULVERT INLET PROTECTION TO BE ROUGHENED, SEEDED, MULCHED, AND CRIMPED PER THE TOWN'S SPECIFICATIONS (SEE DETAIL SMC).

CULVERT PROTECTION (INLET)

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CBMP CONSTRUCTION BEST MANAGEMENT PRACTICES

CP 1 OF 2
Oct. 2013

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PLAN

CULVERT END SECTION

ISOMETRIC

CULVERT PROTECTION (INLET)

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CBMP CONSTRUCTION BEST MANAGEMENT PRACTICES

CP 2 OF 2
Oct. 2013

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VEHICLE TRACKING CONTROL (IF NECESSARY) SEE DETAIL VTC

VEHICLE TRACKING CONTROL (IF NECESSARY) SEE DETAIL VTC

CONCRETE WASHOUT AREA

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CBMP CONSTRUCTION BEST MANAGEMENT PRACTICES

CP 2 OF 2
Oct. 2013

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SEH Project: NHOAC 156217
Checked By: DGH
Drawn By: AMP

Project Status: TOWN REVIEW
Issue Date: 8/26/2020

TOWN REVIEW: 1/22/2021

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

CBMP DETAILS

C3.4

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DIVERSION DITCH INSTALLATION NOTES

- SEE THE PLAN VIEW FOR THE LOCATION(S) OF THE DIVERSION DITCHES.
- A PLASTIC LINER, RIPRAP, OR EROSION CONTROL BLANKET MAY BE NECESSARY TO PROTECT THE DIVERSION DITCH. THE REQUIRED LINING MATERIAL SHALL BE OBTAINED FROM THE CBMP PLANS VIA THE DESIGN ENGINEER.
- ALL MATERIAL EXCAVATED FROM THE DITCH MAY BE USED TO CONSTRUCT THE BERM ON THE DOWNHILL SIDE OF THE DITCH.
- THE DIVERSION DITCH SHALL BE A MINIMUM OF 20" DEEP WITH APPROX. 3:1 SIDE SLOPES. THE ADJACENT BERM SHALL BE A MINIMUM OF 20" IN HEIGHT WITH APPROX. 3:1 SIDE SLOPES. ALL EMBANKMENTS SHALL BE FIRMLY COMPACTED.
- THE DISCHARGE FROM THE DIVERSION DITCH SHALL BE DIRECTED TOWARDS AN APPROPRIATELY SIZED TEMPORARY SEDIMENT BASIN OR OTHER APPROVED AREA.

DIVERSION DITCH INSPECTION AND MAINTENANCE NOTES

- THE EROSION CONTROL SUPERVISOR SHALL REGULARLY INSPECT THE DIVERSION DITCH.
- ACCUMULATED SEDIMENT SHALL BE REMOVED ONCE THE SEDIMENT HAS REACHED A DEPTH EQUAL TO 1/2 (10") THE CREST HEIGHT.
- DIVERSION DITCHES SHALL BE RE-GRADED FOLLOWING THE SIGNS OF MODERATE OR MORE SOIL EROSION OR ANY DAMAGE.
- DIVERSION DITCHES ARE TO 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. ALTERNATIVELY, THE DIVERSION DITCHES MAY BE REMOVED WHEN THE SITE'S TOPOGRAPHY CHANGES SUCH THAT SIGNIFICANT RUNOFF IS NO LONGER POSSIBLE. IN SOME INSTANCES, THE DIVERSION DITCHES MAY REMAIN IN PLACE PERMANENTLY.

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

DIVERSION DITCH SECTION LINED CHANNEL

DIVERSION DITCH SECTION UNLINED CHANNEL

DIVERSION DITCH

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DEWATERING INSTALLATION NOTES

- IT IS THE EROSION CONTROL SUPERVISOR'S RESPONSIBILITY TO ENSURE THAT ALL DEWATERING IS PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT (CDPHE).

DEWATERING MAINTENANCE NOTES

- THE EROSION CONTROL SUPERVISOR SHALL INSPECT THE DEWATERING OPERATION TO ENSURE THAT THE DISCHARGE WATER IS DRAINING TO THE PROPER LOCATION(S) AND PERFORM ANY NECESSARY REPAIRS OR MAINTENANCE ON A FREQUENT BASIS.

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TYPICAL DEWATERING SUMP

DEWATERING

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CBMP

CONSTRUCTION BEST MANAGEMENT PRACTICES

DD 2 OF 2 Oct. 2013

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CONSTRUCTION BEST MANAGEMENT PRACTICES

DD 1 OF 2 Oct. 2013

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D 1 OF 2 Oct. 2013

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DEBRIS CONTROL NOTES:

- A COMBINATION OF SURFACE SCRAPING AND SWEEPING MAY BE NECESSARY TO PROPERLY CLEAN THESE AREAS.
- ALL CHEMICAL SPILLS AND/OR STAINS ON THE SITE SHALL BE CLEANED TO THE MAXIMUM EXTENT PRACTICABLE. IN SOME CASES IT MAY BE NECESSARY TO USE PRESSURIZED WATER AND A VAC-TRUCK.
- ON-SITE PERSONNEL, DELIVERY DRIVERS, ETC., SHOULD BE EDUCATED ON THE NEED FOR CONTINUAL DEBRIS AND TRASH CONTROL.

DEBRIS AND TRASH CONTROL

DEBRIS AND TRASH CONTROL

NOTE:

- 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. FURTHERMORE, ALL LOOSE TRASH AND LITTER ASSOCIATED WITH THE PROJECT MUST BE REMOVED AND PROPERLY DISCARDED ON A DAILY BASIS.

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DETENTION POND PROTECTION INSTALLATION NOTES

- DETENTION POND PROTECTION SHALL BE INSTALLED IMMEDIATELY FOLLOWING THE CONSTRUCTION OF THE TRICKLE CHANNEL AND FOREBAY.
- CRUSHED ROCK SHALL BE 2.0"-3.0" IN SIZE WITH A FRACTURED FACE (ALL SIDES).
- ROCK SOCK FOR OUTLET STRUCTURE AND FOREBAY PROTECTION SHALL BE ONE CONTINUOUS PIECE (SEE DETAIL RS).

DETENTION POND PROTECTION INSPECTION AND MAINTENANCE NOTES

- THE EROSION CONTROL SUPERVISOR SHALL REGULARLY INSPECT THE OUTLET STRUCTURE PROTECTION.
- ACCUMULATED SEDIMENT SHALL BE REMOVED IMMEDIATELY.
- OUTLET STRUCTURE 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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FOREBAY

OUTLET / MICROPOOL

DETENTION POND PROTECTION

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CONSTRUCTION BEST MANAGEMENT PRACTICES

DP 2 OF 2 Oct. 2013

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CONSTRUCTION BEST MANAGEMENT PRACTICES

DTC 2 OF 2 Oct. 2013

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CONSTRUCTION BEST MANAGEMENT PRACTICES

DTC 1 OF 2 Oct. 2013

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CBMP

CONSTRUCTION BEST MANAGEMENT PRACTICES

DP 1 OF 2 Oct. 2013

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Drawn By: AMP

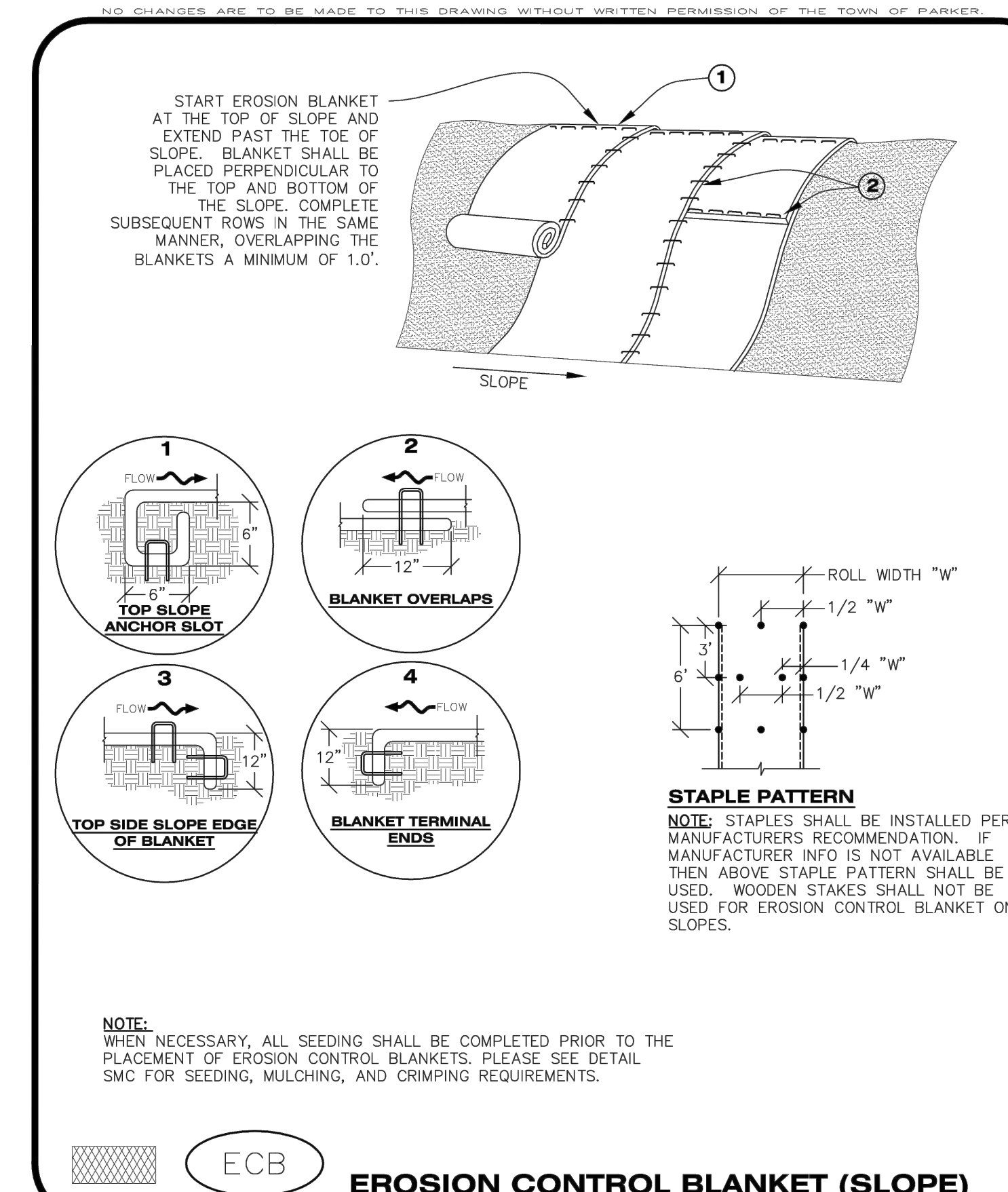
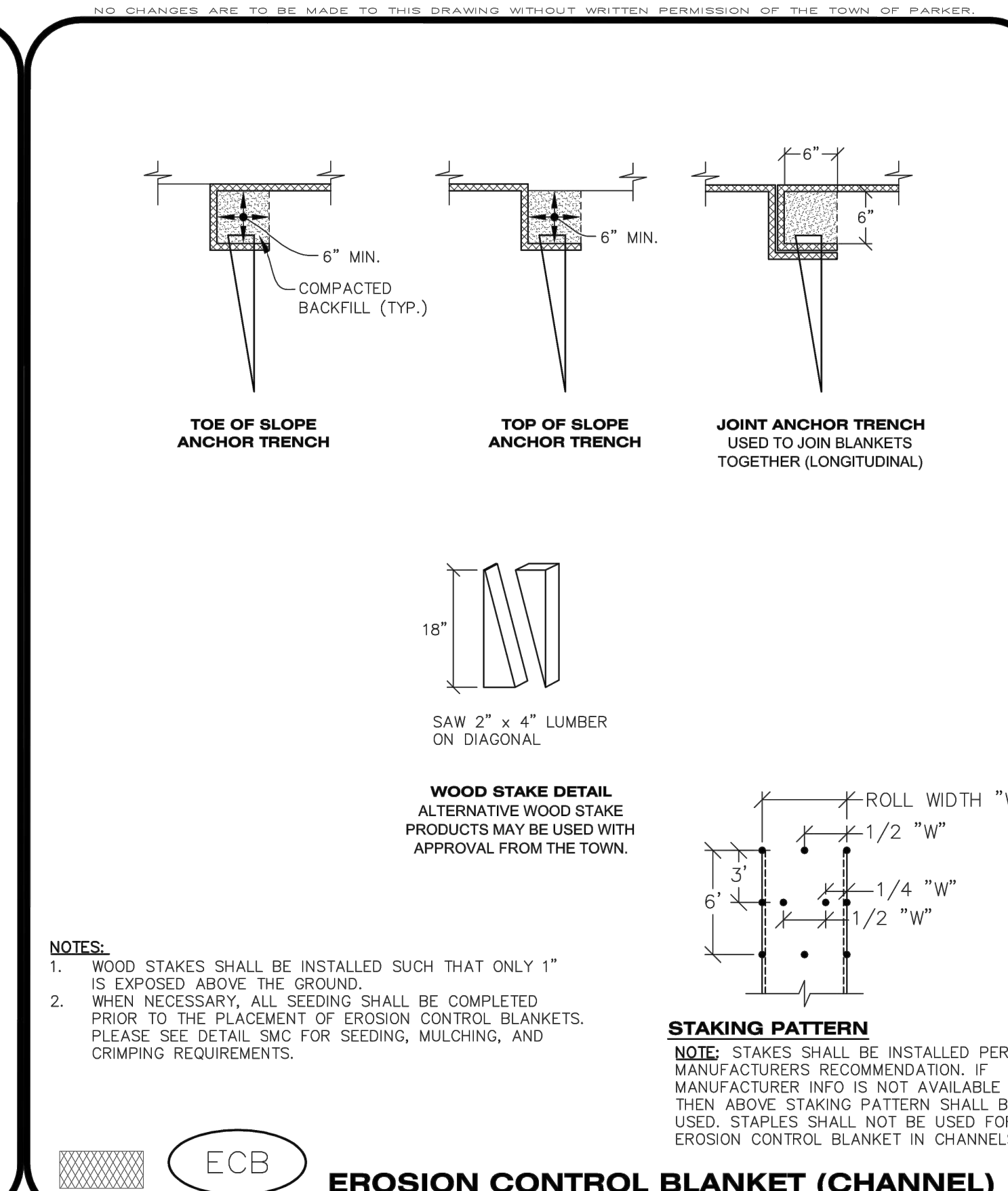
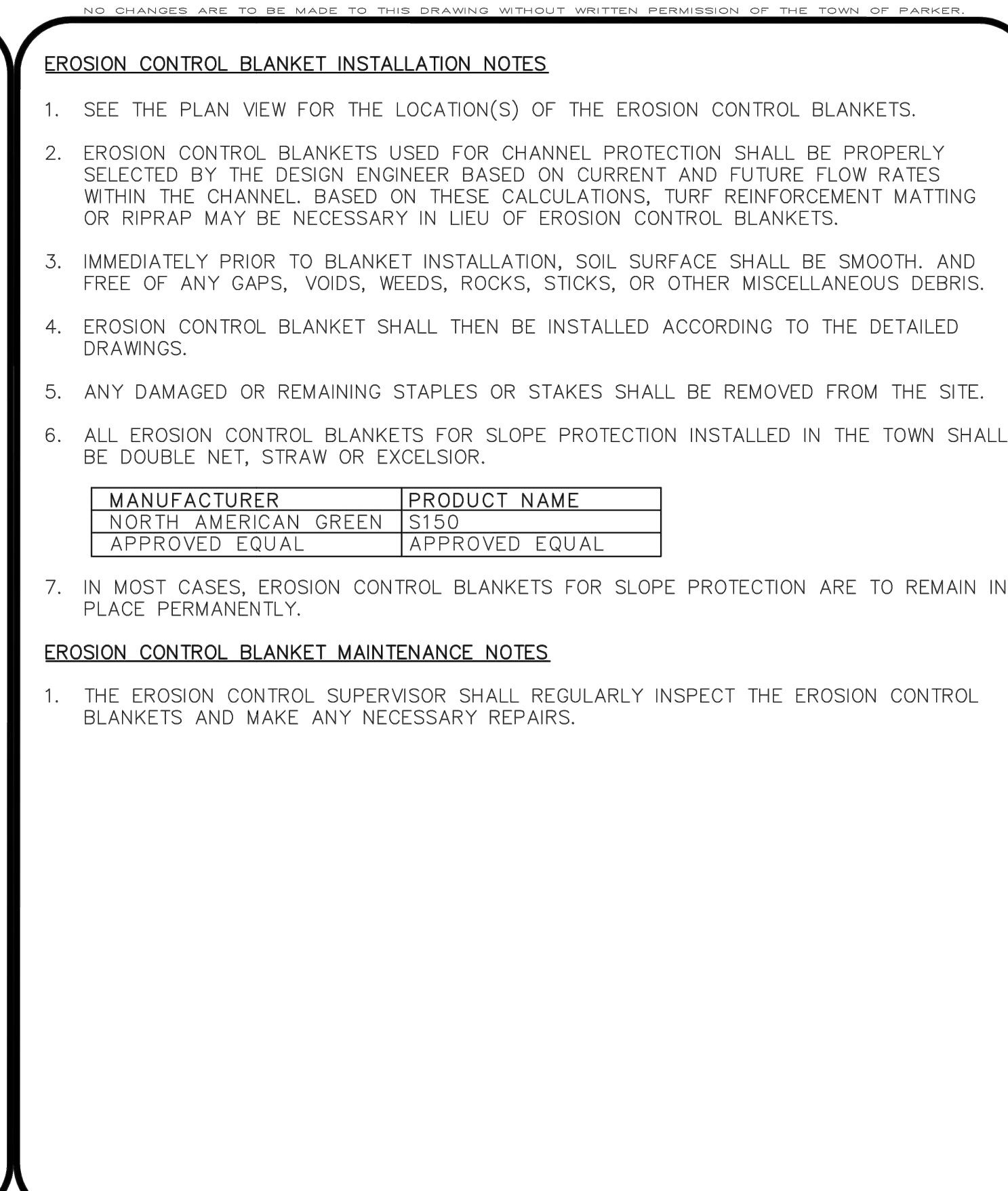
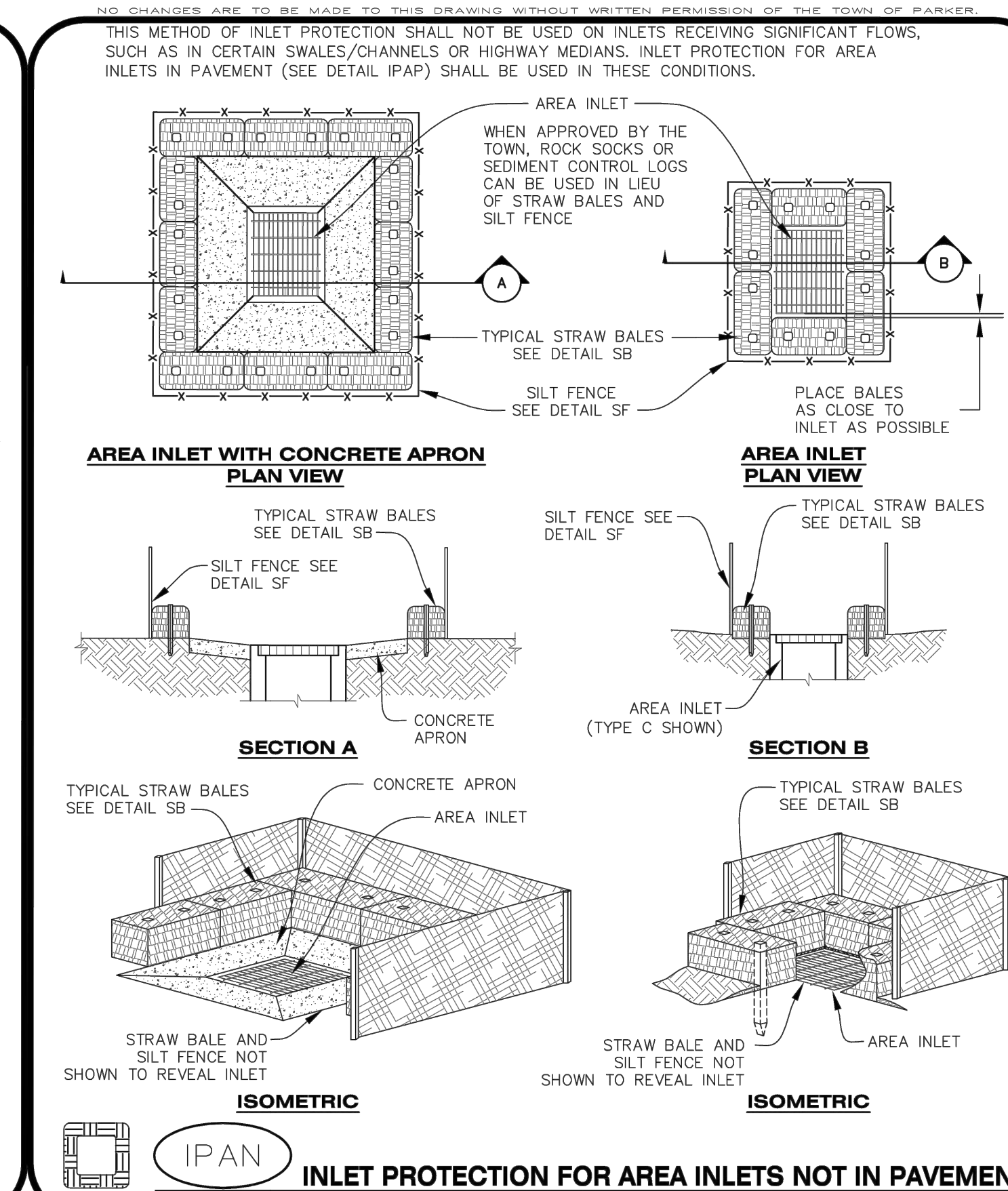
Project Status: TOWN REVIEW
Issue Date: 8/26/2020
TOWN REVIEW: 1/22/2021

Revision Issue: TOWN COMMENTS
Date: 1/22/21

CBMP DETAILS

1

C3.5



CBMP | **IPAN**

CONSTRUCTION BEST MANAGEMENT PRACTICES | 1 OF 1 Oct. 2013

CBMP | **ECB**

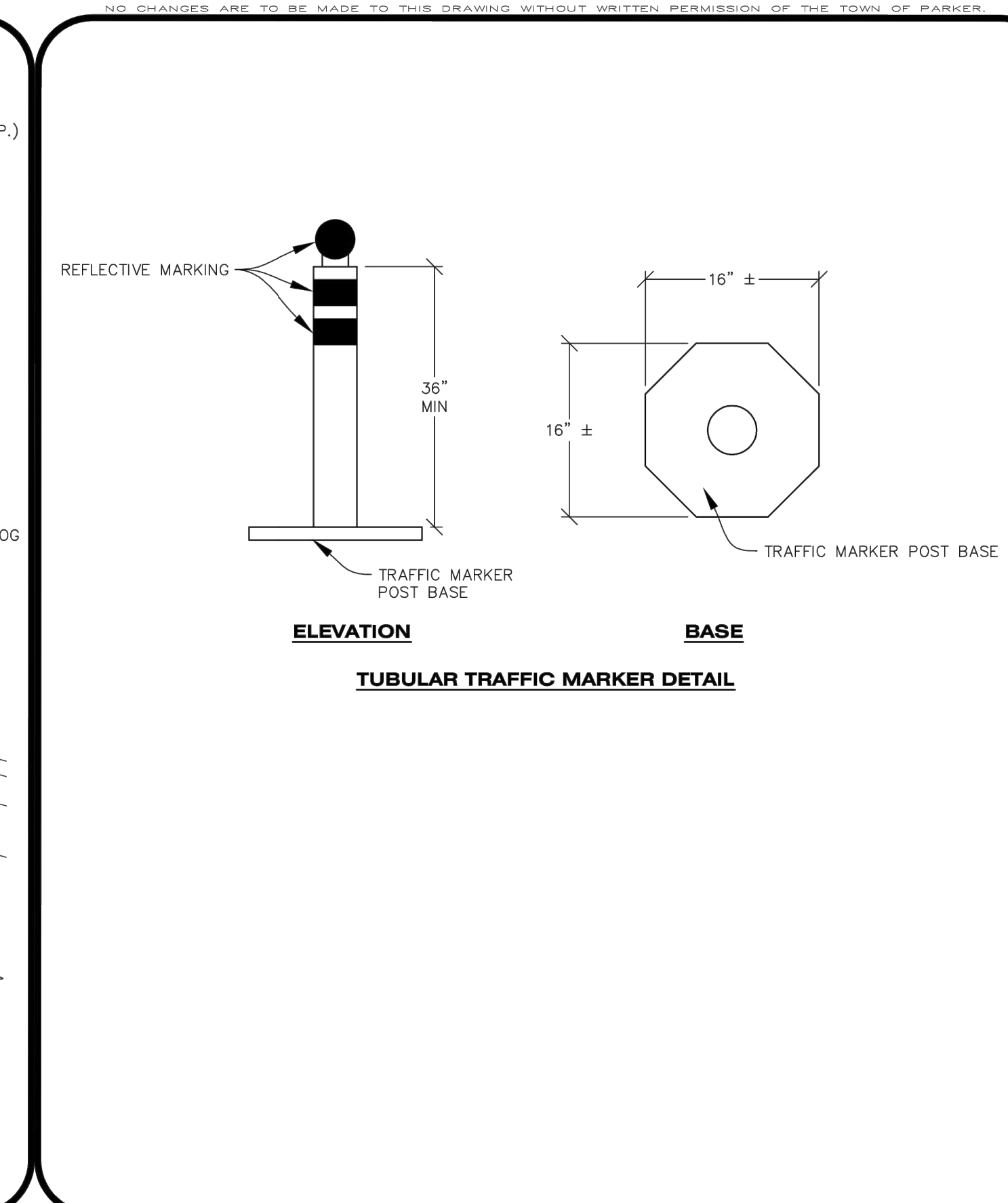
CONSTRUCTION BEST MANAGEMENT PRACTICES | 3 OF 3 Oct. 2013

CBMP | **ECB**

CONSTRUCTION BEST MANAGEMENT PRACTICES | 2 OF 3 Oct. 2013

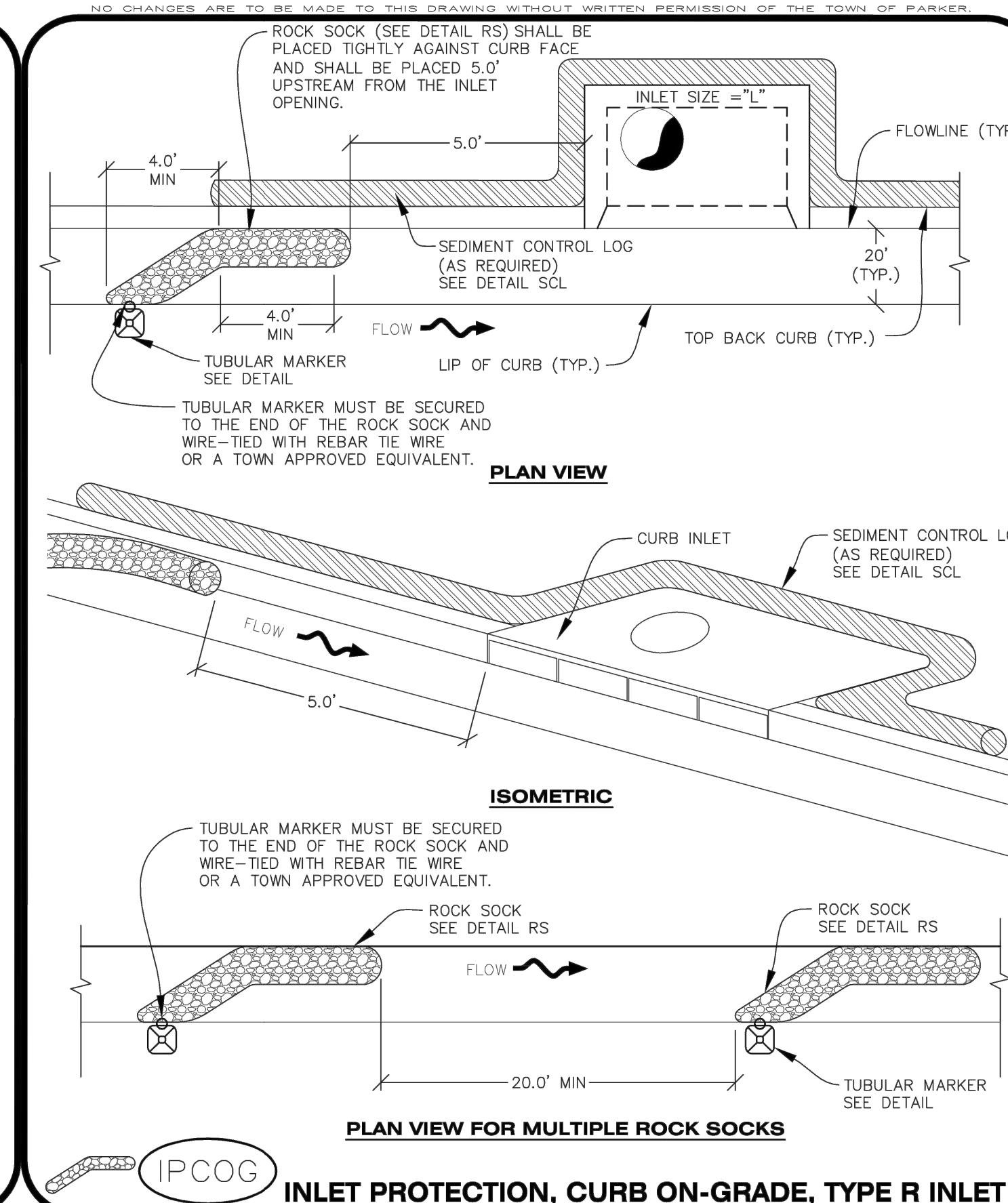
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CONSTRUCTION BEST MANAGEMENT PRACTICES | 1 OF 3 Oct. 2013



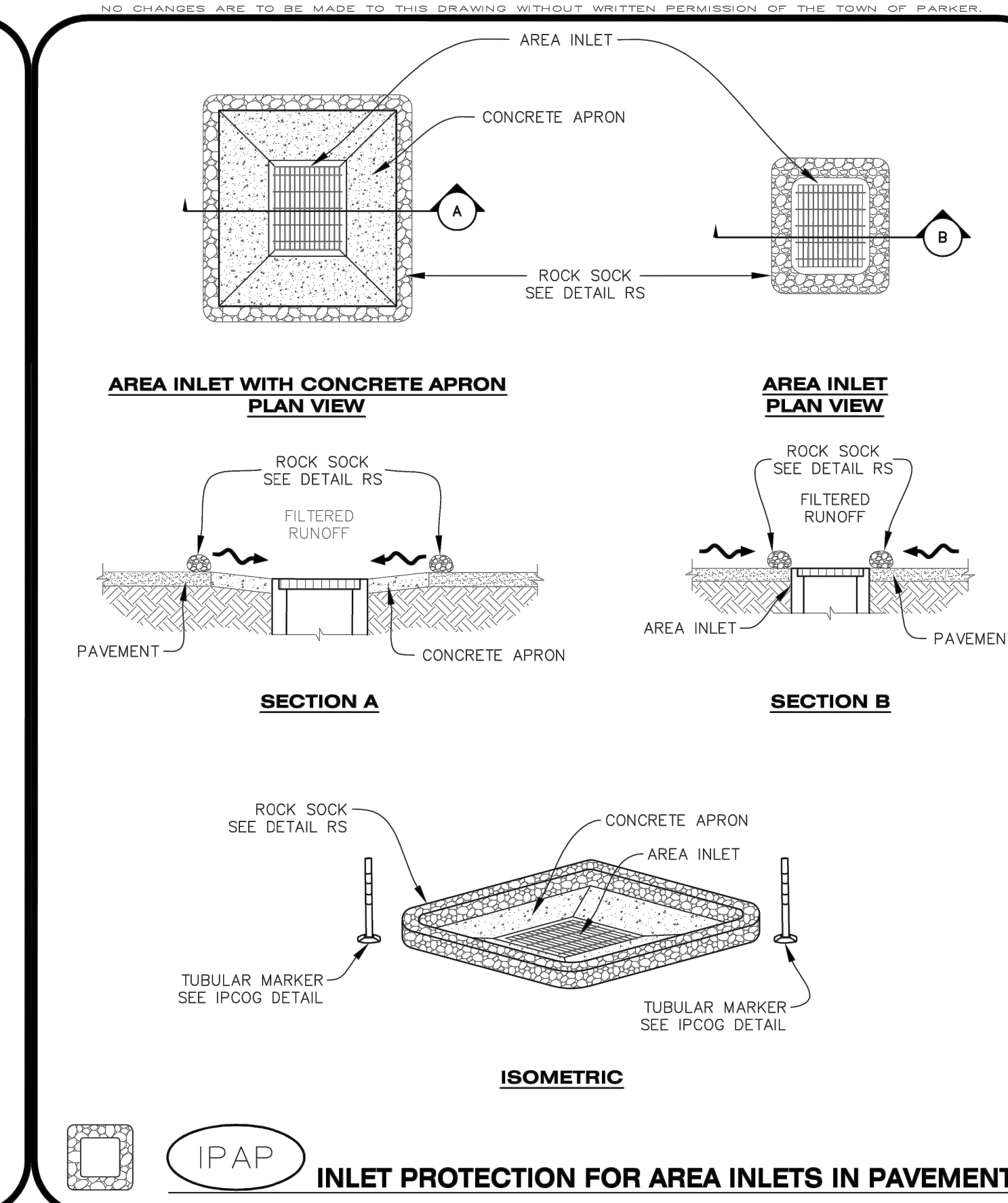
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CONSTRUCTION BEST MANAGEMENT PRACTICES | 2 OF 3 Oct. 2013



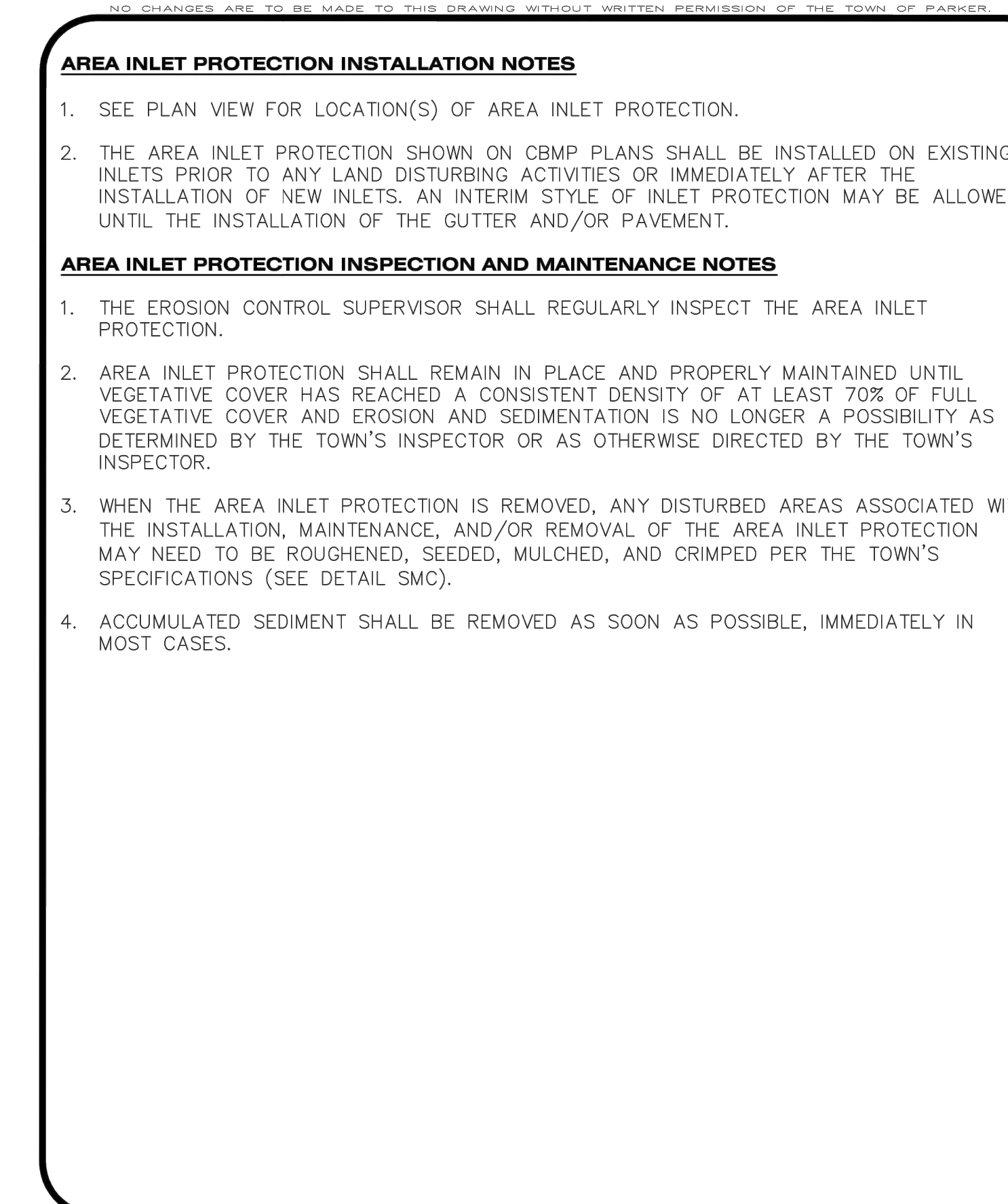
CBMP | **IPCOG**

CONSTRUCTION BEST MANAGEMENT PRACTICES | 1 OF 3 Oct. 2013



CBMP | **IPAP**

CONSTRUCTION BEST MANAGEMENT PRACTICES | 1 OF 1 Oct. 2013



CBMP | **IPA**

CONSTRUCTION BEST MANAGEMENT PRACTICES | 1 OF 1 Oct. 2013

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INLET PROTECTION, CURB ON-GRADE INSTALLATION NOTES

- SEE CBMP PLAN FOR LOCATION(S) OF ON-GRADE INLET PROTECTION.
- CRUSHED ROCK SHALL BE 2.0"-3.0" IN SIZE WITH A FRACTURED FACE (ALL SIDES).
- ROCK SOCK FOR ON-GRADE INLET PROTECTION SHALL BE ONE CONTINUOUS PIECE.
- ROCK SOCK SHALL BE CONSTRUCTED USING CHICKEN WIRE OR OTHER APPROVED MATERIAL, SIZED TO KEEP ROCK FROM SPILLING OUT.
- ROCK SOCK SHALL BE PLACED 5.0' UPHILL OF THE INLET OPENING.
- TUBULAR MARKER SHALL BE A MINIMUM OF 3.0' HIGH WITH REFLECTIVE BANDS AND OCTAGON SHAPED BASES.
- 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

- THE EROSION CONTROL SUPERVISOR SHALL REGULARLY INSPECT THE ON-GRADE INLET PROTECTION.
- ACCUMULATED SEDIMENT SHALL BE REMOVED AS SOON AS POSSIBLE, IMMEDIATELY IN MOST CASES.
- ROCK SOCKS SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED OR DAMAGED.
- 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.

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

PLAN VIEW

SECTION A

IPCOS INLET PROTECTION, CURB ON SUMP, TYPE R INLET

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

CURB INLET PROTECTION INSTALLATION NOTES

- SEE CBMP PLAN FOR LOCATION(S) OF CURB INLET PROTECTION.
- CRUSHED ROCK SHALL BE 2.0"-3.0" IN SIZE WITH A FRACTURED FACE (ALL SIDES).
- ROCK SOCK SHALL BE ONE CONTINUOUS PIECE OR SHALL BE CONSTRUCTED USING WIRE WRAPPED JOINTS (SEE DETAIL RS).
- ROCK SOCK SHALL BE CONSTRUCTED USING CHICKEN WIRE OR OTHER APPROVED MATERIAL SIZED TO KEEP ROCK FROM SPILLING OUT.
- ROCK SOCK SHALL EXTEND 3.0' ALONG THE CURB BEYOND LOCATIONS WHERE IT RETURNS TO CONTACT CURB FACE.
- TUBULAR TRAFFIC MARKERS SHALL BE A MINIMUM OF 36" IN HEIGHT WITH REFLECTIVE BANDS AND OCTAGON SHAPED BASES.
- 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

- THE EROSION CONTROL SUPERVISOR SHALL REGULARLY INSPECT THE CURB INLET PROTECTION.
- ACCUMULATED SEDIMENT SHALL BE REMOVED AS SOON AS POSSIBLE, IMMEDIATELY IN MOST CASES.
- ROCK SOCKS SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED OR DAMAGED.
- 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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LOT PROTECTION

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

CBMP | **IPCOS**

CONSTRUCTION BEST MANAGEMENT PRACTICES | 3 OF 3
Oct. 2013

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CBMP | **IPCOS**

CONSTRUCTION BEST MANAGEMENT PRACTICES | 1 OF 2
Oct. 2013

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CBMP | **IPCOS**

CONSTRUCTION BEST MANAGEMENT PRACTICES | 2 OF 2
Oct. 2013

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CBMP | **LP**

CONSTRUCTION BEST MANAGEMENT PRACTICES | 1 OF 2
Oct. 2013

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EROSION CONTROL BLANKET FOR LOT PROTECTION INSTALLATION NOTES

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

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

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

- THE EROSION CONTROL SUPERVISOR SHALL REGULARLY INSPECT THE EROSION CONTROL BLANKET FOR LOT PROTECTION.
- EROSION CONTROL BLANKETS FOR LOT PROTECTION ARE INTENDED TO REMAIN IN PLACE AND MAINTAINED UNTIL LANDSCAPING IS INSTALLED.

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

MASONRY WORK PROTECTION

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

MASONRY WORK PROTECTION INSTALLATION NOTES

- MASONRY WORK PROTECTION MAY NEED TO BE INSTALLED WHEN MASONRY WORK AND MIXING IS OCCURRING.
- A ROCK SOCK SHALL BE INSTALLED IN A CRESCENT SHAPE ON THE DOWNHILL SIDE OF THE MASONRY WORK AND MIXER.
- CRUSHED ROCK SHALL BE 2.0"-3.0" IN SIZE WITH A FRACTURED FACE (ALL SIDES).
- ROCK SOCK SHALL BE ONE CONTINUOUS PIECE OR SHALL BE CONSTRUCTED USING WIRE WRAPPED JOINTS (SEE DETAIL RS).
- 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

- THE EROSION CONTROL SUPERVISOR SHALL REGULARLY INSPECT THE MASONRY WORK PROTECTION.
- ALL CONCRETE WASTE SHALL BE REGULARLY CLEANED AND PLACED IN THE CONCRETE WASH OUT AREA.
- ROCK SOCKS SHALL BE REPLACED IF THEY BECOME HEAVILY SOILED OR DAMAGED.

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

CONTRACTOR SHALL ANCHOR PORTABLE TOILET TO THE GROUND, AT A MINIMUM OF TWO OPPOSING CORNERS (ON A DIAGONAL) USING U-SHAPED REBAR STAKES

PORTABLE TOILET PROTECTION

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

CBMP | **LP**

CONSTRUCTION BEST MANAGEMENT PRACTICES | 2 OF 2
Oct. 2013

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

CBMP | **MWP**

CONSTRUCTION BEST MANAGEMENT PRACTICES | 1 OF 2
Oct. 2013

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CBMP | **MWP**

CONSTRUCTION BEST MANAGEMENT PRACTICES | 2 OF 2
Oct. 2013

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CBMP | **PTP**

CONSTRUCTION BEST MANAGEMENT PRACTICES | 1 OF 2
Oct. 2013

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

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

CBMP DETAILS

1

C3.6

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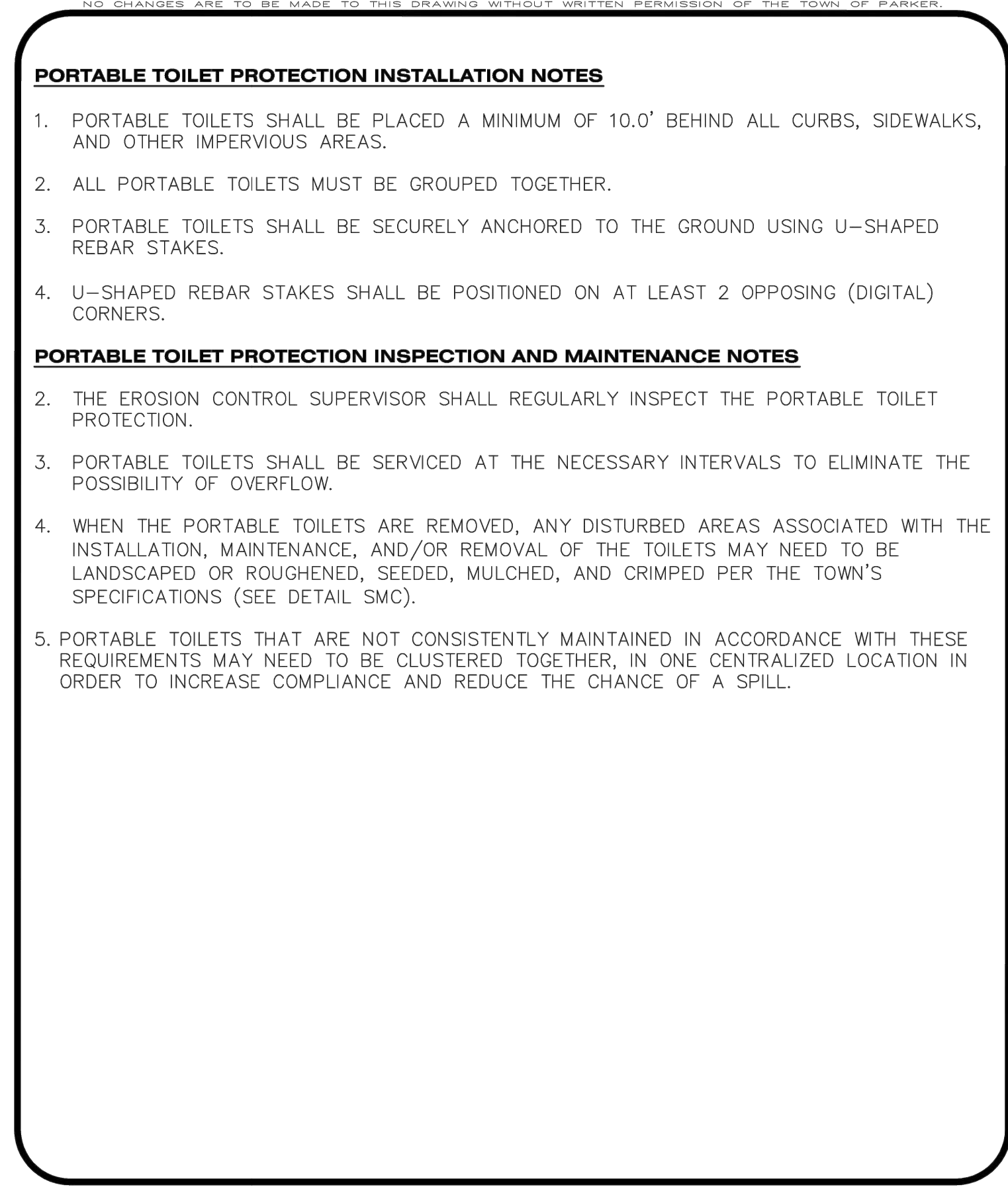
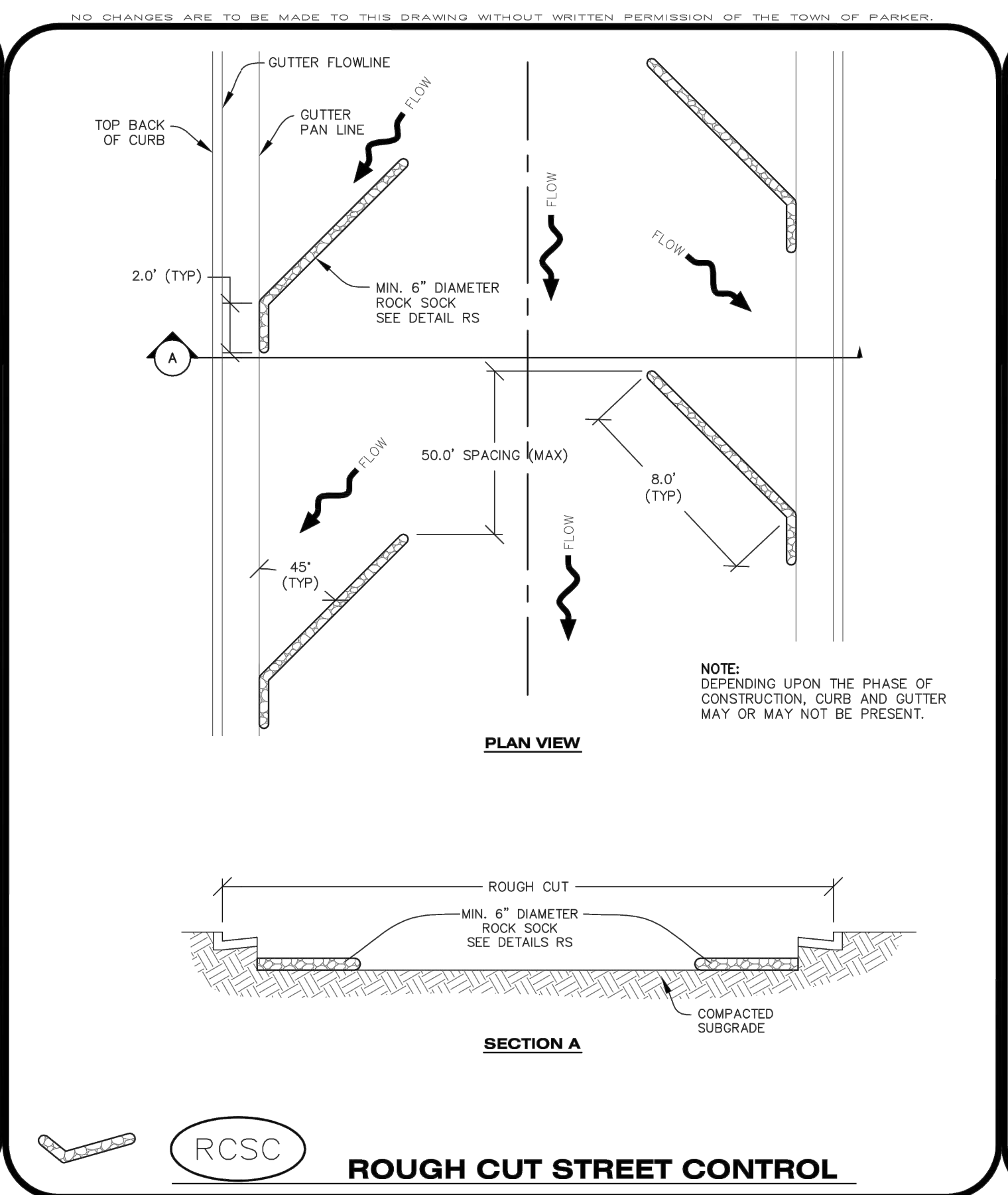
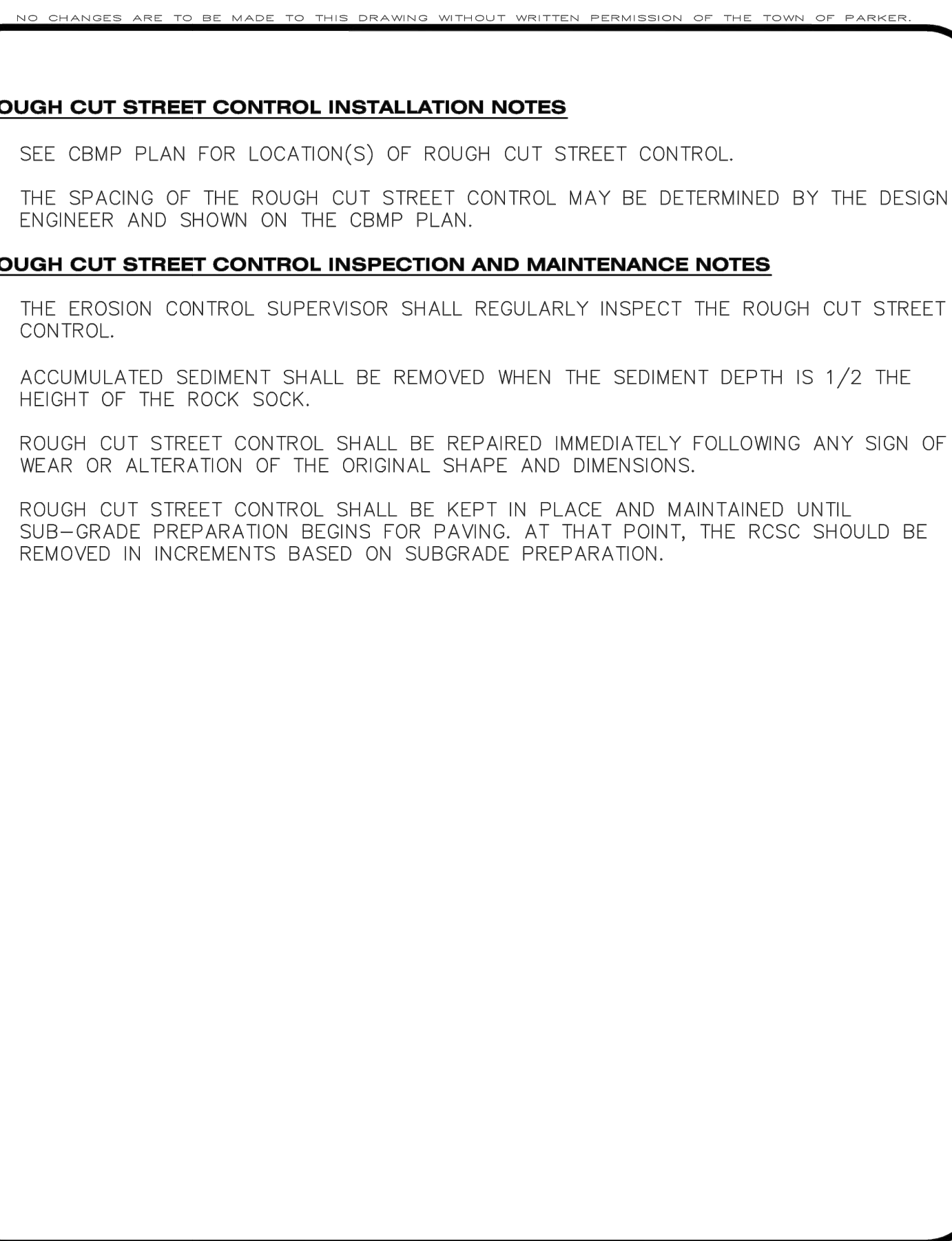
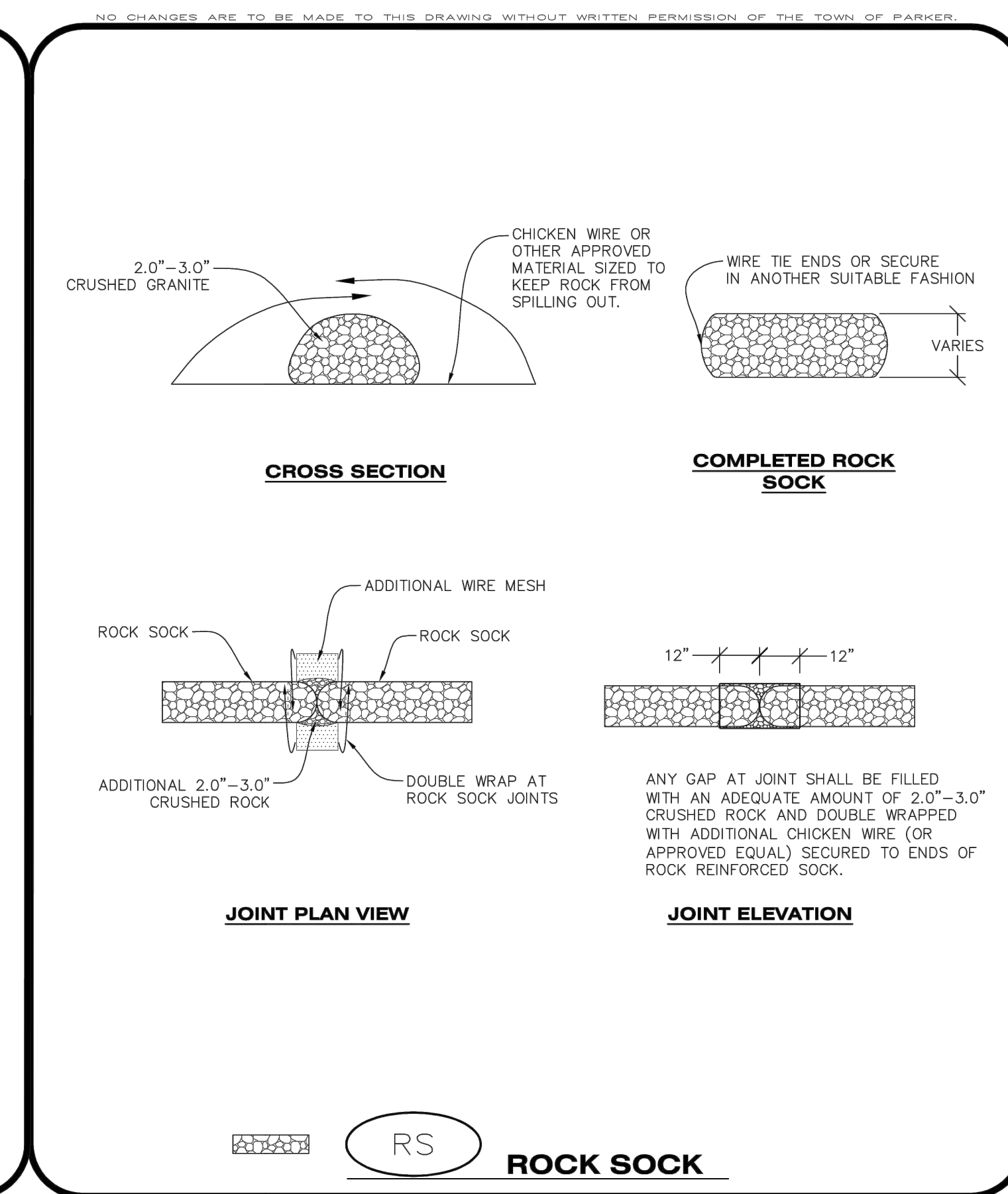
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Rev. #	Description	Date
1	TOWN COMMENTS	1/22/21

CBMP DETAILS

C3.7

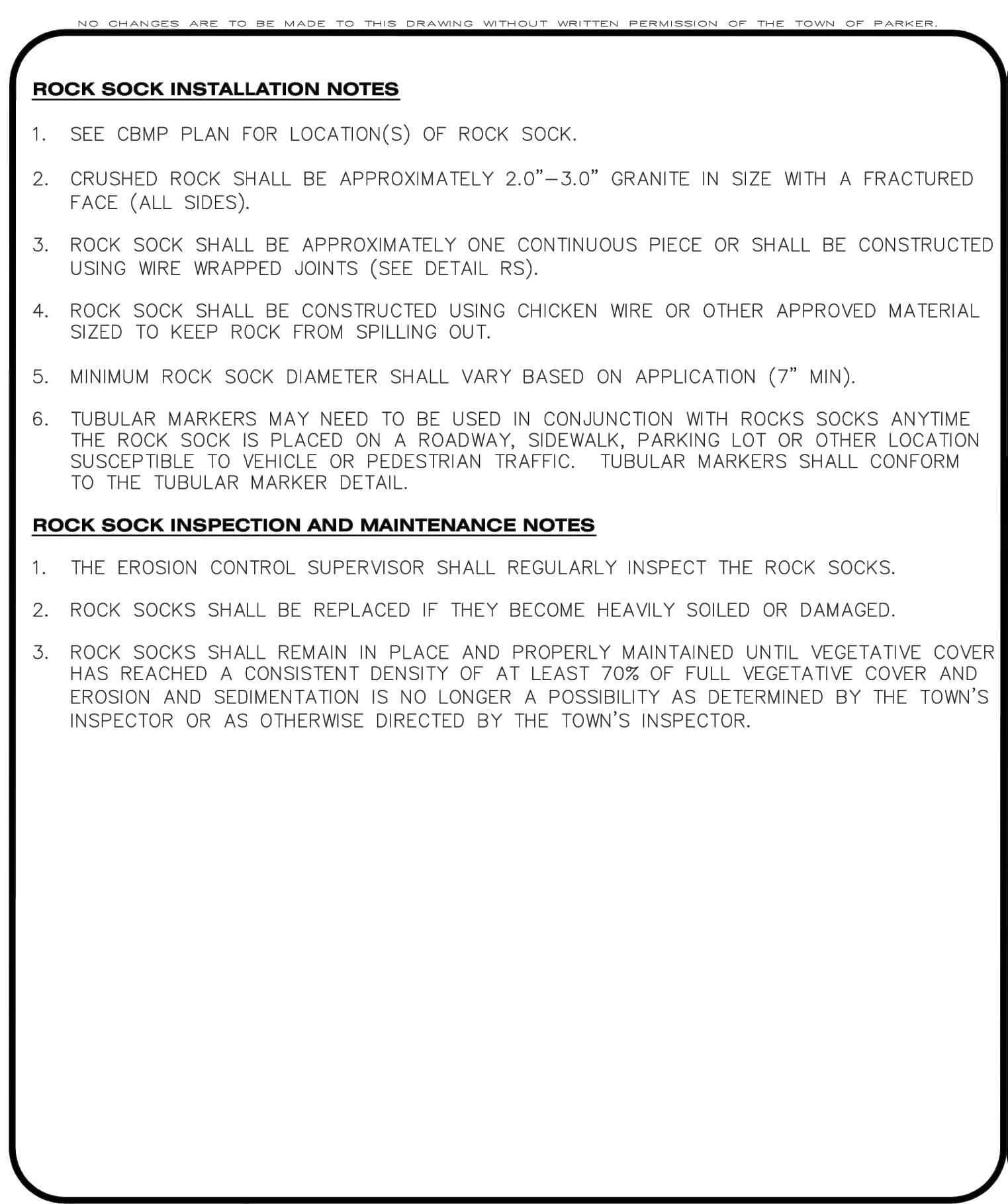
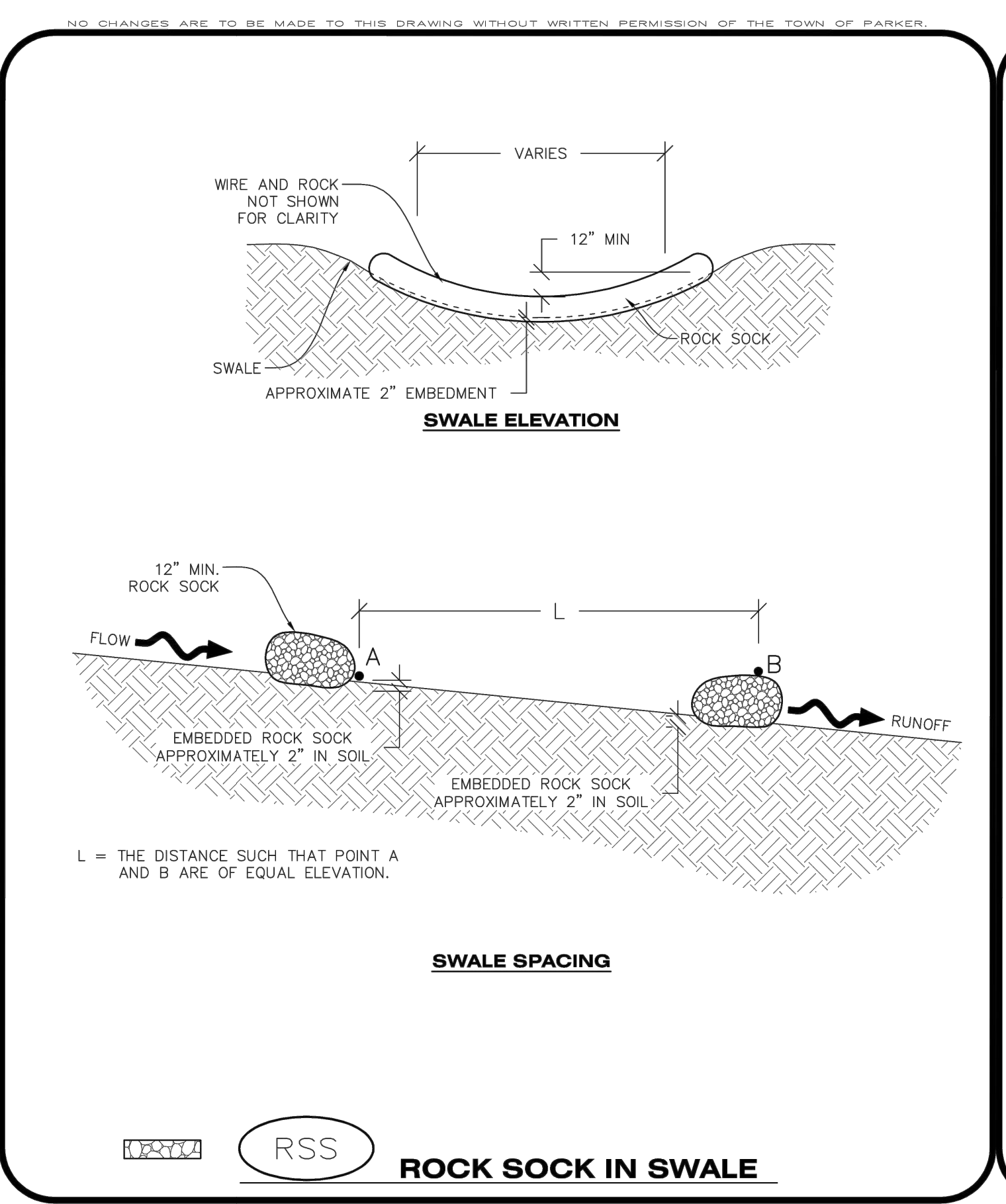
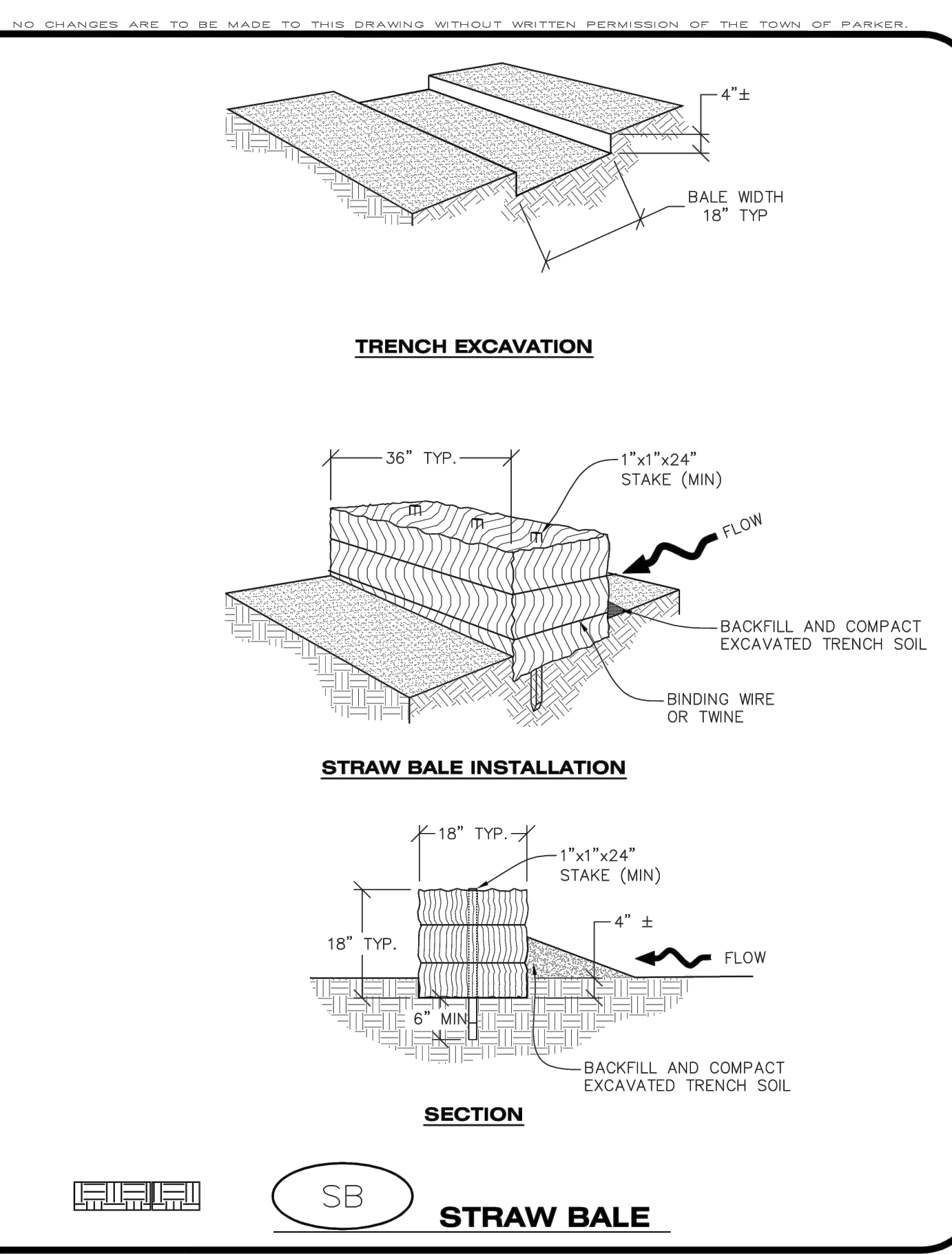
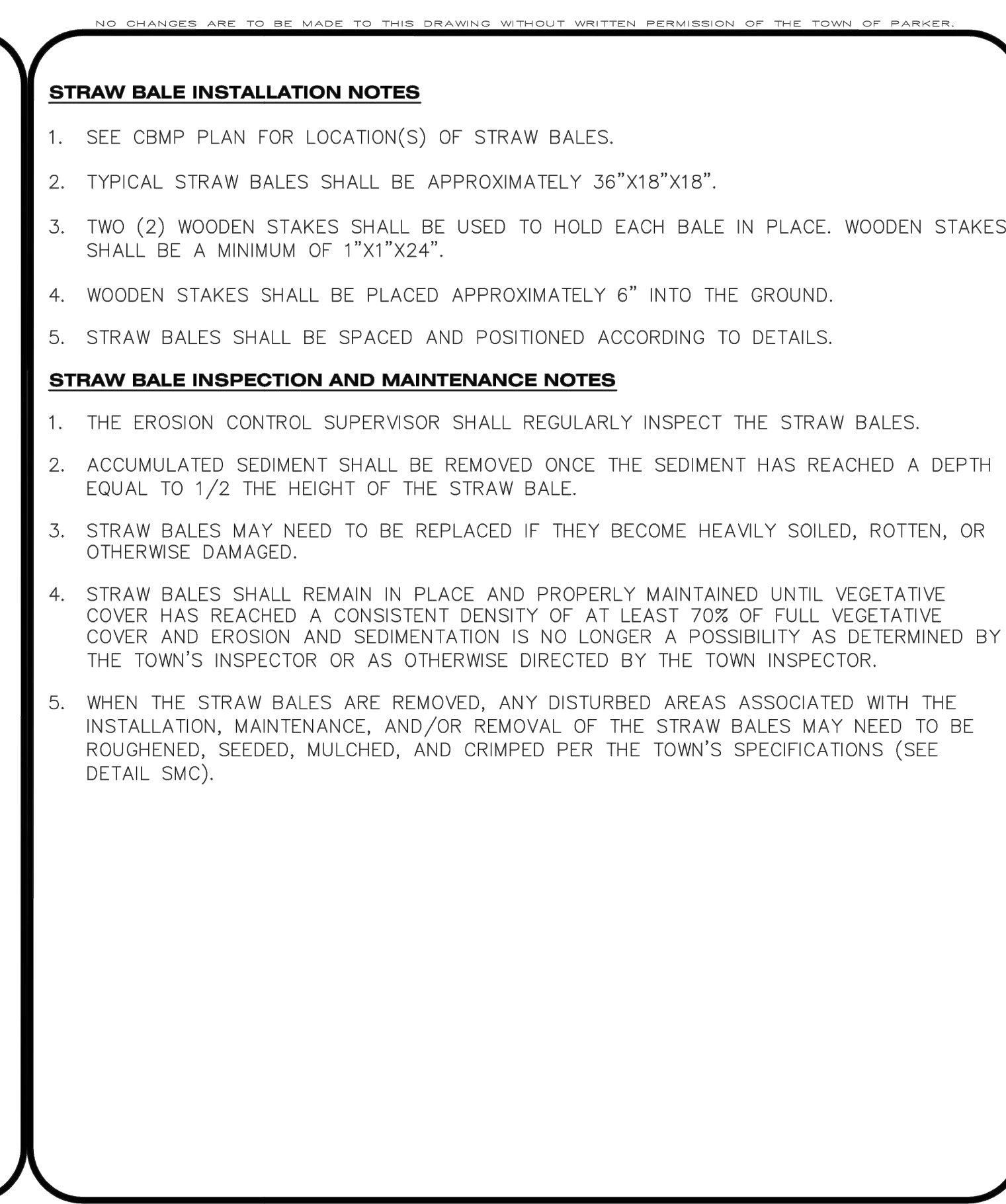


CBMP CONSTRUCTION BEST MANAGEMENT PRACTICES | **RS** | 1 OF 2 | Oct. 2013

CBMP CONSTRUCTION BEST MANAGEMENT PRACTICES | **RCSC** | 2 OF 2 | Oct. 2013

CBMP CONSTRUCTION BEST MANAGEMENT PRACTICES | **RCSC** | 1 OF 2 | Oct. 2013

CBMP CONSTRUCTION BEST MANAGEMENT PRACTICES | **PTP** | 2 OF 2 | Oct. 2013



CBMP CONSTRUCTION BEST MANAGEMENT PRACTICES | **SB** | 2 OF 2 | Oct. 2013

CBMP CONSTRUCTION BEST MANAGEMENT PRACTICES | **SB** | 1 OF 2 | Oct. 2013

CBMP CONSTRUCTION BEST MANAGEMENT PRACTICES | **RSS** | 1 OF 1 | Oct. 2013

CBMP CONSTRUCTION BEST MANAGEMENT PRACTICES | **RS** | 2 OF 2 | Oct. 2013

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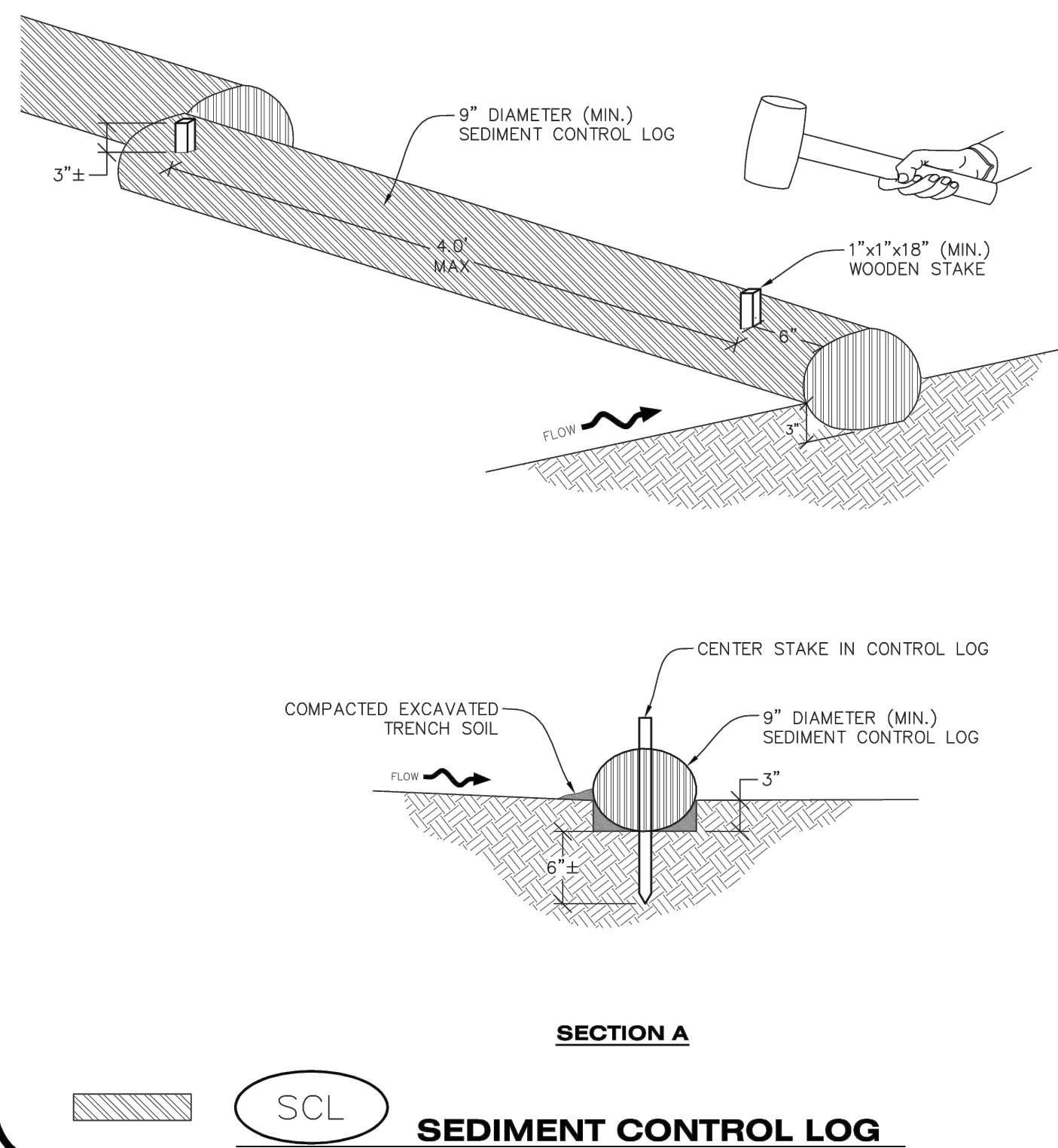
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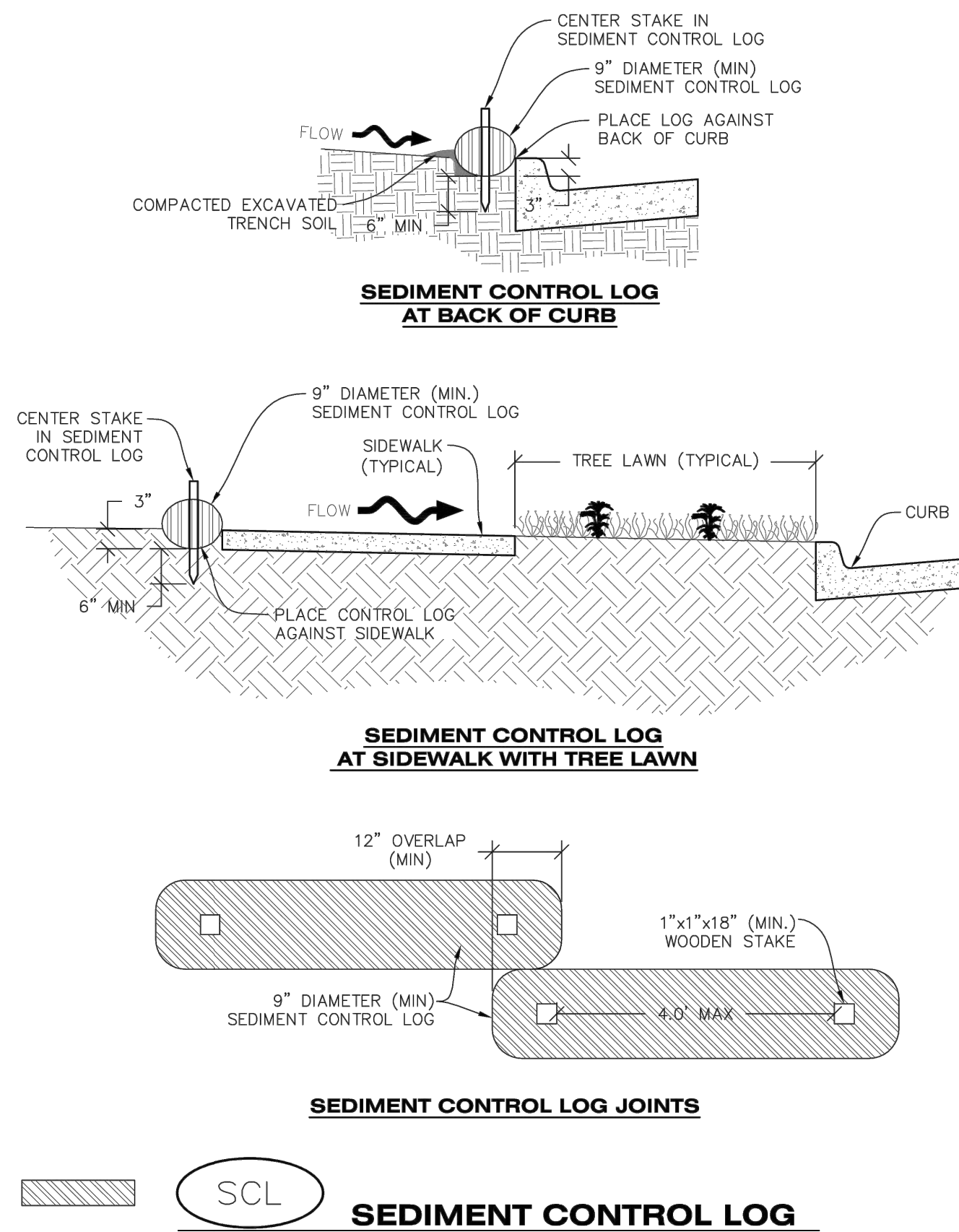
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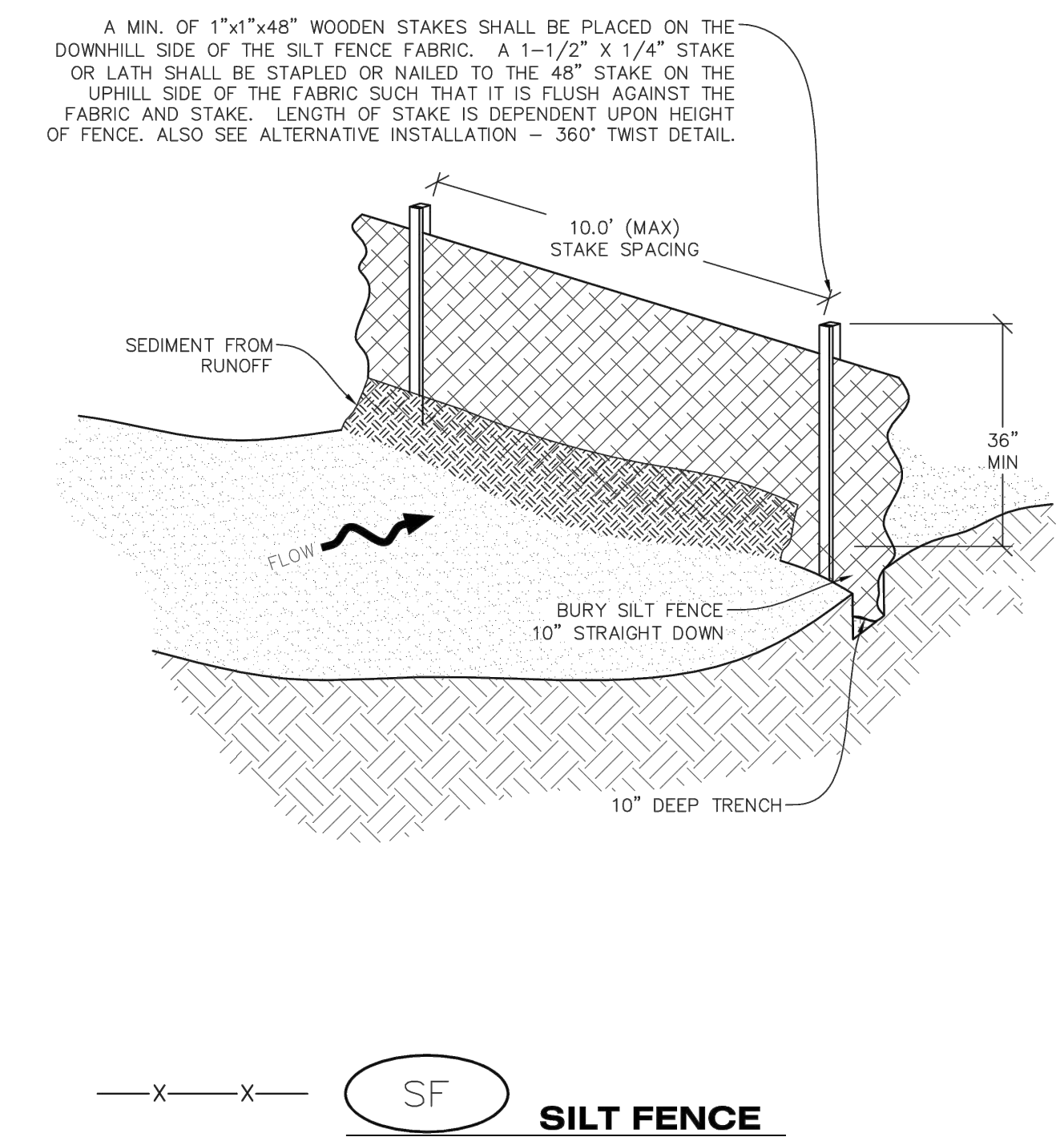
SEDIMENT CONTROL LOG INSTALLATION NOTES

- SEE CBMP PLAN FOR LOCATION(S) OF SEDIMENT CONTROL LOGS.
- ALL SEDIMENT CONTROL LOGS SHALL BE INSTALLED FREE OF DEFECTS INCLUDING RIPS, HOLES AND OBVIOUS WEAR.
- SEDIMENT CONTROL LOGS SHALL BE INSTALLED IMMEDIATELY ADJACENT TO AN IMPERVIOUS SURFACE SUCH AS A CURB HEAD, SIDEWALK, INLET LID, ETC. NO GAPS SHALL EXIST BETWEEN THE SEDIMENT CONTROL LOG AND THE IMPERVIOUS SURFACE.
- A UNIFORM 3" DEEP ANCHOR TRENCH (APPROX.) IN THE SHAPE OF A HALF-SPHERE SHALL BE EXCAVATED USING A TRENCHER, SPADE-SHAPED SHOVEL, OR PICK. THE ANCHOR TRENCH SHALL BE SIZED TO ALLOW FOR THE SEDIMENT CONTROL LOG TO SEAT TIGHTLY AGAINST THE ANCHOR TRENCH.
- EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF THE ANCHOR TRENCH AND PROPERLY COMPACTED.
- ANCHOR TRENCH SHALL BE RELATIVELY FREE OF ROCKS OR OTHER DEBRIS PRIOR TO THE PLACEMENT.
- ALL SEDIMENT CONTROL LOGS SHALL BE PLACED 3" (APPROX.) BELOW THE GROUND AND PULLED TIGHT ON BOTH ENDS TO REMOVE ANY CURVES OR SNAGS.
- THE UPHILL SIDE OF THE SEDIMENT CONTROL LOG SHALL BE BACKFILLED WITH SOIL THAT IS RELATIVELY FREE OF ROCKS AND DEBRIS. THE SOIL SHALL BE TIGHTLY COMPACTED AGAINST THE GROUND AND SEDIMENT CONTROL LOG USING A SHOVEL, OR SIMILAR DEVICE.
- SEDIMENT CONTROL LOG STAKES SHALL BE MADE OF WOOD AND SECURELY ANCHOR THE SCL IN PLACE.
- STAKES SHALL BE PLACED ON 4.0' CENTERS AND EMBEDDED APPROXIMATELY 6" INTO THE GROUND. STAKES THAT ARE BROKEN PRIOR TO OR DURING INSTALLATION SHALL BE REPLACED.
- SEDIMENT CONTROL LOGS SHALL OVERLAP A MINIMUM OF 12". THE OVERLAPPING SHALL OCCUR ON THE UP-GRADE SIDE OF THE LOGS.
- SEDIMENT CONTROL LOGS SHALL BE STAKED WITHIN 6" FROM EACH END.
- SEDIMENT CONTROL LOGS THAT ARE INSTALLED BEHIND CURBS AND SIDEWALKS MUST BE DONE SO THAT NO MORE THAN A 2" GAP EXISTS BETWEEN THE CONCRETE AND THE LOG. EROSION CONTROL BLANKETING (ECB) BETWEEN THE GAP MAY BE REQUIRED IN INSTANCES WHERE THIS DOES NOT OCCUR.

SEDIMENT CONTROL LOG INSPECTION AND MAINTENANCE NOTES

- THE EROSION CONTROL SUPERVISOR SHALL REGULARLY INSPECT THE SEDIMENT CONTROL LOGS.
- ACCUMULATED SEDIMENT SHALL BE REMOVED ONCE THE SEDIMENT HAS REACHED A DEPTH EQUAL TO 1/2 THE HEIGHT OF EXPOSED LOG.
- SEDIMENT CONTROL LOGS 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.
- SEDIMENT CONTROL LOGS SHALL BE REPLACED WHEN THERE ARE ANY SIGNS OF WEAR OR DAMAGE THAT WOULD PREVENT THE SCL FROM FUNCTIONING AS DESIGNED.
- WHEN THE SEDIMENT CONTROL LOGS ARE REMOVED, ANY DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION, MAINTENANCE, AND/OR REMOVAL OF THE SEDIMENT CONTROL LOGS MAY NEED TO BE ROUGHENED, SEEDED, MULCHED, AND CRIMPED PER THE TOWN'S SPECIFICATIONS (SEE DETAIL SMC).

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



CBMP
CONSTRUCTION BEST MANAGEMENT PRACTICES

SCL
1 OF 3
Oct. 2013

CBMP
CONSTRUCTION BEST MANAGEMENT PRACTICES

SCL
2 OF 3
Oct. 2013

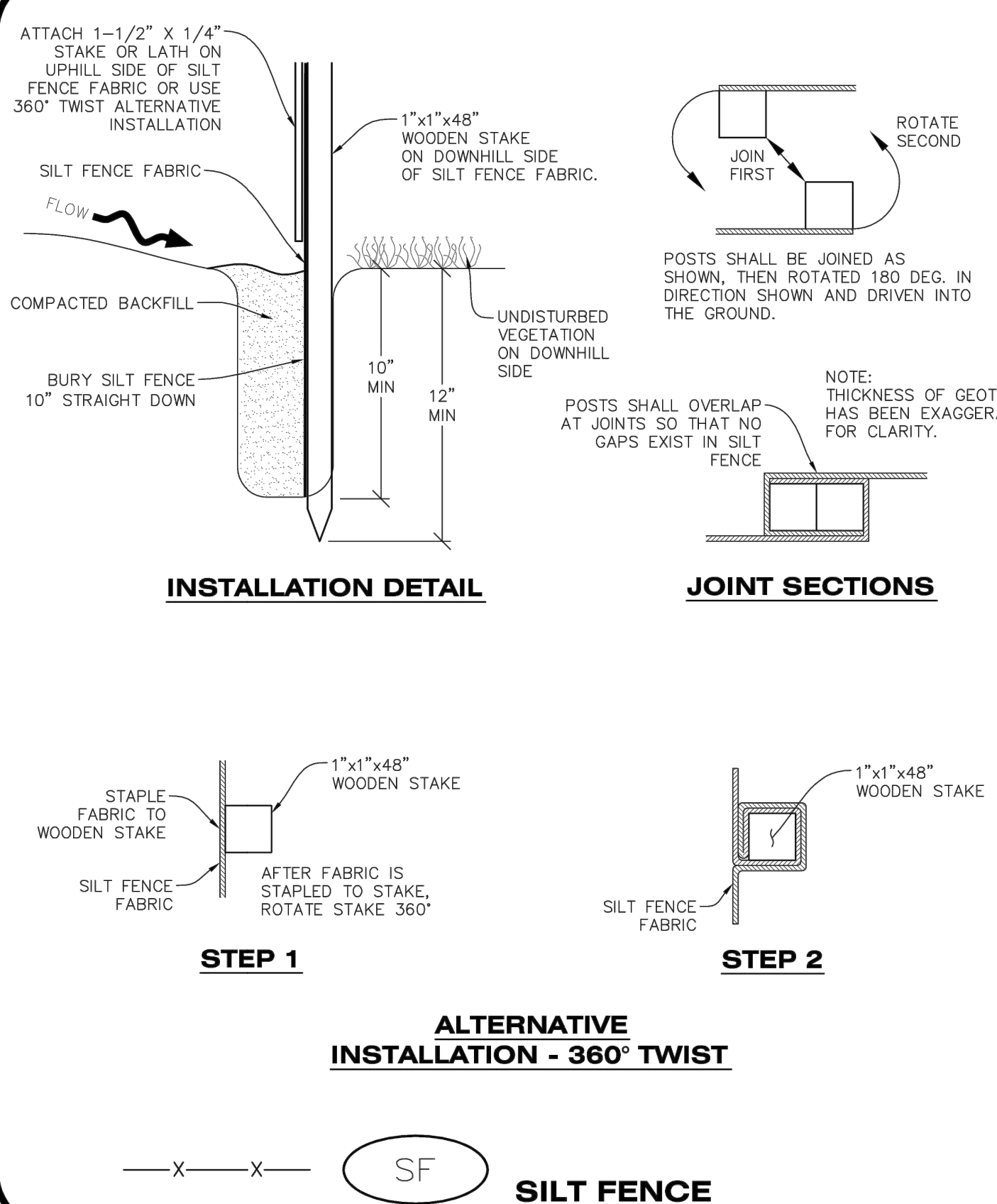
CBMP
CONSTRUCTION BEST MANAGEMENT PRACTICES

SCL
3 OF 3
Oct. 2013

CBMP
CONSTRUCTION BEST MANAGEMENT PRACTICES

SF
1 OF 4
Oct. 2013

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SILT FENCE INSTALLATION NOTES

- SEE CBMP PLAN FOR LOCATION(S) OF SILT FENCE.
- ALL SILT FENCE SHALL BE INSTALLED IN GOOD CONDITION AND FREE OF ANY DEFECTS INCLUDING RIPS, HOLES AND OBVIOUS WEAR.
- A UNIFORM 10" DEEP ANCHOR TRENCH SHALL BE EXCAVATED USING A TRENCHER.
- A 10" DEEP ANCHOR SLIT SHALL BE FORMED IF USING A STATIC SLICING METHOD.
- EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF THE ANCHOR TRENCH.
- ANCHOR TRENCH SHALL BE GENERALLY FREE OF ROCKS OR OTHER DEBRIS PRIOR TO THE PLACEMENT OF THE SILT FENCE.
- THE ANCHOR TRENCH SHALL BE THOROUGHLY BACKFILLED WITH SOIL THAT IS GENERALLY FREE OF ROCKS AND DEBRIS.
- ALL EXCAVATED MATERIAL SHALL BE PLACED ON THE UP-GRADE SIDE OF THE SILT FENCE.
- STAKES SHALL BE POSITIONED ON THE DOWNHILL SIDE OF THE SILT FENCE FABRIC AND PLACED ON 10.0' CENTERS OR LESS. STAKES SHALL BE EMBEDDED A MINIMUM OF 12" INTO THE GROUND. A WOODEN LATH SHALL BE ATTACHED TO THE OPPOSING (UPHILL) SIDE OF THE STAKE FOR ADDED STRENGTH AND SUPPORT. THE LATH SHALL HAVE THE FOLLOWING DIMENSIONS: 1"x4"x24".
- SILT FENCE SHALL BE PULLED TIGHT AS IT IS ANCHORED TO THE STAKES. THERE SHOULD NOT BE SIGNIFICANT SAGGING ALONG ANY PORTION OF THE SILT FENCE AFTER IT HAS BEEN ANCHORED TO THE STAKES.
- SILT FENCE FABRIC SHALL BE ANCHORED TO THE STAKES AND LATHS USING STAPLES OR NAILS OF AN APPROXIMATE LENGTH. ENOUGH STAPLES AND NAILS SHOULD BE PLACED ALONG THE LATH TO ENSURE PROPER ATTACHMENT.
- SILT FENCE FABRIC SHALL MEET THE FOLLOWING MANDATORY REQUIREMENTS:

- AN ORIGINAL PRODUCT SPECIFICATION SHEET FROM THE SILT FENCE MANUFACTURER SHALL BE MADE AVAILABLE AT THE REQUEST OF THE TOWN'S INSPECTOR. THE PRODUCT SPECIFICATION SHEET SHALL PROVIDE THE RESULTS FOR THE TEST METHODS ABOVE.
- SILT FENCE JOINTS SHALL BE CONNECTED ACCORDING TO THE ATTACHED DRAWING.
- SILT FENCE THAT IS INSTALLED BEHIND CURBS AND SIDEWALKS MUST BE DONE SO THAT NO MORE THAN A 2" GAP EXISTS BETWEEN CONCRETE AND THE SILT FENCE. EROSION CONTROL BLANKETING (ECB) BETWEEN THE GAP MAY BE REQUIRED IN INSTANCES WHERE THIS DOES NOT OCCUR.

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SILT FENCE INSPECTION AND MAINTENANCE NOTES

- THE EROSION CONTROL SUPERVISOR SHALL REGULARLY INSPECT THE SILT FENCE.
- ACCUMULATED SEDIMENT SHALL BE REMOVED REGULARLY.
- SILT FENCE 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.
- SILT FENCE SHALL BE REPLACED WHEN THERE ARE ANY SIGNS OF WEAR AND/OR DAMAGE.
- WHEN THE SILT FENCE IS REMOVED, ANY DISTURBED AREAS ASSOCIATED WITH THE INSTALLATION, MAINTENANCE, AND/OR REMOVAL OF THE SILT FENCE MAY NEED TO BE ROUGHENED, SEEDED, MULCHED, AND CRIMPED PER THE TOWN'S SPECIFICATIONS (SEE DETAIL SMC).

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SEEDING AND MULCHING SHALL BE PERFORMED ACCORDING TO THE ACCOMPANYING DETAIL(S) AND TEXT. NO EXCEPTIONS SHALL BE MADE

- SEE PLAN VIEW FOR:
 - LOCATION(S) OF SEEDING AND MULCHING
 - TYPE OF SEED MIX
- SEED MIXES MAY CONFORM TO THE TABLE PROVIDED WITH THE SMC NOTES OR ALTERNATIVES MAY BE ALLOWED WITH PRIOR PERMISSION BY THE TOWN'S INSPECTOR.
- SEEDING MAY BE PERFORMED YEAR ROUND ASSUMING THE SOIL IS NOT FROZEN. SEEDING DURING TIMES OF EXTREME TEMPERATURES SHOULD BE AVOIDED IF POSSIBLE.
- AT THE BEGINNING OF THE LAND DISTURBANCE ACTIVITIES, IT IS HIGHLY RECOMMENDED THAT AN APPROPRIATE AMOUNT OF NATIVE TOPSOIL BE STRIPPED FROM THE SITE AND STOCKPILED. ALL AREAS, PRIOR TO PERMANENT SEEDING AND MULCHING, WILL LIKELY NEED TO BE COVERED WITH AN APPROPRIATE LAYER OF TOPSOIL. THIS REQUIREMENT APPLIES TO ALL AREAS WHERE NATIVE SEEDING IS SPECIFIED ON THE CBMP PLAN AND/OR LANDSCAPING PLANS.
- IT IS STRONGLY RECOMMENDED THAT SAMPLES FROM THE STRIPPED TOPSOIL BE PROPERLY COLLECTED AND TESTED BY A QUALIFIED LABORATORY TO ENSURE ADEQUATE NUTRIENT CONTENT PRIOR TO SEEDING AND MULCHING. IF IT IS DISCOVERED THAT THE TOPSOIL IS VOID OF THE NUTRIENTS NECESSARY TO SUCCESSFULLY ESTABLISH THE REQUIRED VEGETATION, THEN THE APPROPRIATE AMENDMENTS SHALL BE ADDED.
- ALL AREAS TO BE SEEDED AND MULCHED SHALL BE SURFACE ROUGHENED ACCORDING TO THE SURFACE ROUGHENING DETAILS AND NOTES. SURFACE ROUGHENING SHALL OCCUR AFTER PLACEMENT OF THE TOPSOIL.
- WHEN INSTALLED WITH A DRILL SEEDER, SEED SHALL BE PLACED AT A DEPTH OF 1/4 - 1/2 INCH. ROW SPACING SHALL BE NO MORE THAN 6-INCHES.
- ALL AREAS INCAPABLE OF BEING DRILL SEEDED SHALL BE SURFACE ROUGHENED ACCORDING TO THE SURFACE ROUGHENING NOTES OR EFFECTIVELY ROUGHENED USING A HARROW OR OTHER SUCH IMPLEMENT. ALL AREAS SHALL BE UNIFORMLY HAND BROADCASTED WITH THE PROPER SEED MIX APPLIED AT TWO TIMES THE DRILL SEEDED RATE. BROADCASTED AREAS SHALL THEN BE RE-HARROWED OR RE-RAKED USING A HARD-TIPPED RAKE TO ENSURE THAT SEEDS ARE BURIED TO AN APPROXIMATE DEPTH OF 1/4 - 1/2 INCH.
- AFTER SEEDING HAS BEEN COMPLETED, MULCH SHALL BE UNIFORMLY APPLIED AT A RATE OF 2 TONS/ACRE (4,000 LBS/ACRE). MULCH SHALL BE MECHANICALLY CRIMPED TO A DEPTH OF 2 INCHES USING A CRIMPER. MULCH SHALL BE HAND CRIMPED AND COVERED WITH A TACKIFIER IN AREAS WHERE MECHANICAL CRIMPING IS NOT POSSIBLE. WHEN SOILS PERMIT, ALL MULCH SHALL BE CRIMPED SUCH THAT THE INDIVIDUAL PIECES OF STRAW OR HAY FORM EXAGGERATED V-SHAPES PROTRUDING OUT OF THE GROUND SEVERAL INCHES.
- IN CERTAIN INSTANCES, IT MAY BE NECESSARY TO APPLY A TACKIFIER IN ORDER TO HELP WITH STRAW DISPLACEMENT. TACKIFIER SHALL BE APPLIED ACCORDING TO THE MANUFACTURER'S SPECIFICATIONS.

CBMP
CONSTRUCTION BEST MANAGEMENT PRACTICES

SF
2 OF 4
Oct. 2013

CBMP
CONSTRUCTION BEST MANAGEMENT PRACTICES

SF
3 OF 4
Oct. 2013

CBMP
CONSTRUCTION BEST MANAGEMENT PRACTICES

SF
4 OF 4
Oct. 2013

CBMP
CONSTRUCTION BEST MANAGEMENT PRACTICES

SMC
1 OF 3
Oct. 2013

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

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SEH Project: NHOAC 156217
Checked By: DEH
Drawn By: AMP

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

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

CBMP DETAILS

1

C3.8

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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.

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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% SIDEOATS 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

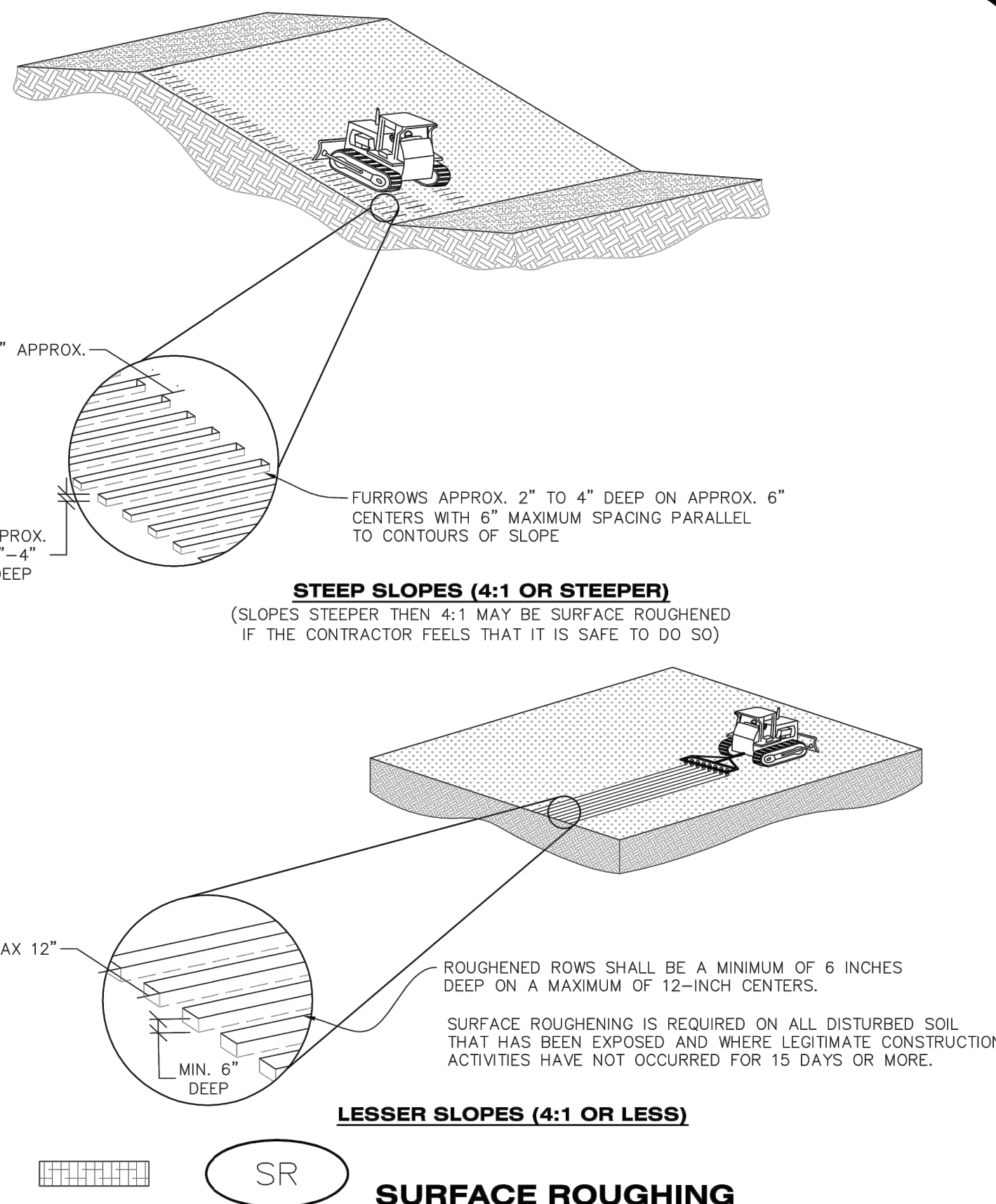
SEEDING RATE:

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

SEED MIX 4:

OTHER SEED MIXES APPROVED BY THE TOWN OF PARKER

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SURFACE ROUGHENING INSTALLATION NOTES

1. SEE CBMP PLAN FOR LOCATION(S) OF SURFACE ROUGHENING.
2. DISTURBED AREAS THAT REMAIN INACTIVE FOR 15 DAYS OR MORE MUST RECEIVE SURFACE ROUGHENING OR ANOTHER APPROVED BMP FROM THE SDCM. DETERMINATION OF JOB SITE INACTIVITY IS AT THE DISCRETION OF THE TOWN'S INSPECTOR.
3. FOR STEEP SLOPES (3:1 OR STEEPER), IT IS ACCEPTABLE TO "TRACK" THE SLOPES, ACCORDING TO THE CBMP DETAILS.
4. SCHEDULES FOR REQUIRING STABILIZATION MAY BE MODIFIED BY THE PERMITTEE TO ALLOW FOR SPECIAL CONSIDERATIONS SUCH AS STABILIZING ACCESS AREAS AND AREAS IN CLOSE PROXIMITY TO CONTINUING CONSTRUCTION.

SURFACE ROUGHENING INSPECTION AND MAINTENANCE NOTES

1. THE EROSION CONTROL SUPERVISOR SHALL PROACTIVELY INSPECT THE SURFACE ROUGHENING.

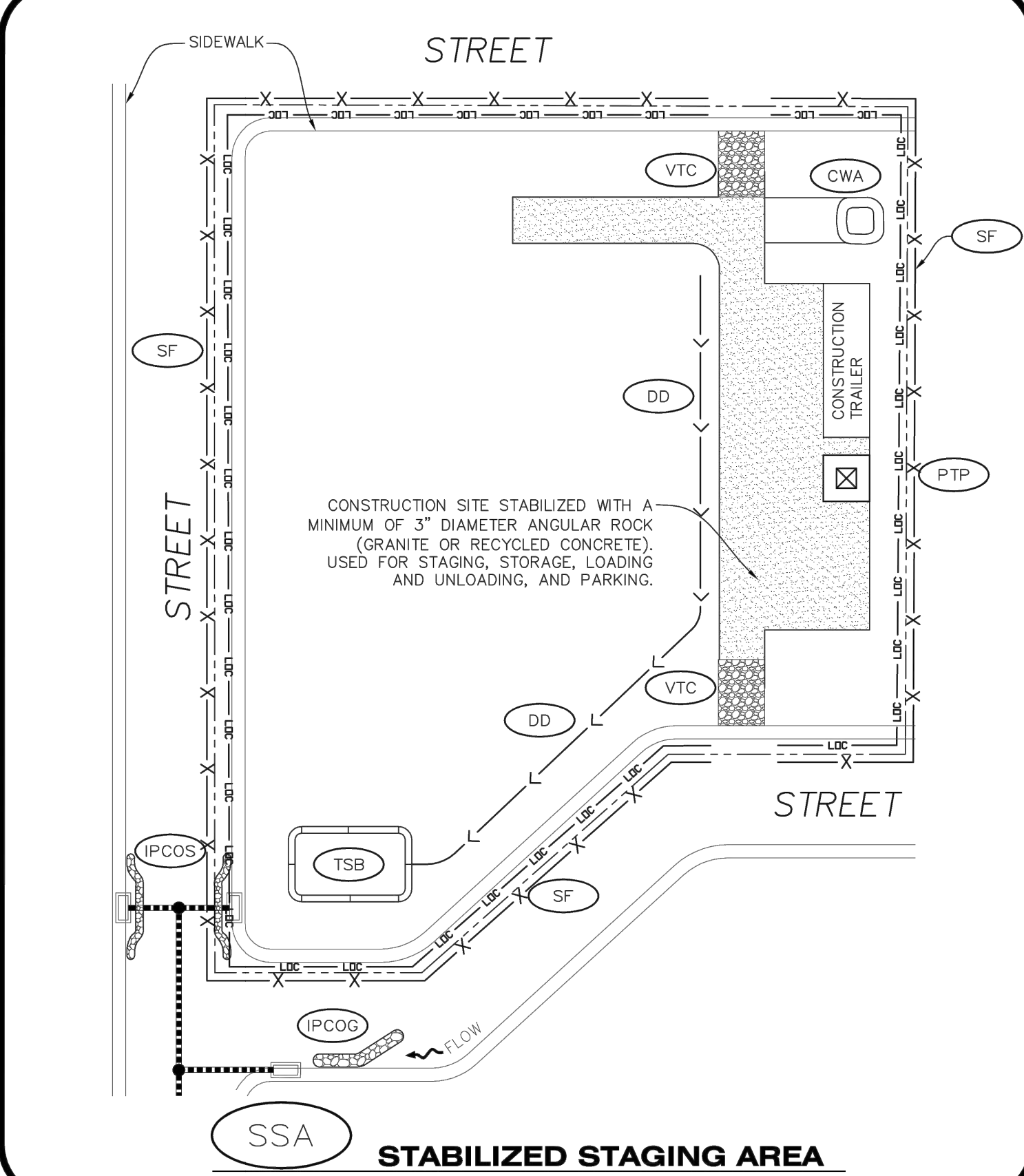
CBMP
CONSTRUCTION BEST MANAGEMENT PRACTICES
SMC
2 OF 3
Oct. 2013

CBMP
CONSTRUCTION BEST MANAGEMENT PRACTICES
SMC
3 OF 3
Oct. 2013

CBMP
CONSTRUCTION BEST MANAGEMENT PRACTICES
SR
1 OF 2
Oct. 2013

CBMP
CONSTRUCTION BEST MANAGEMENT PRACTICES
SR
2 OF 2
Oct. 2013

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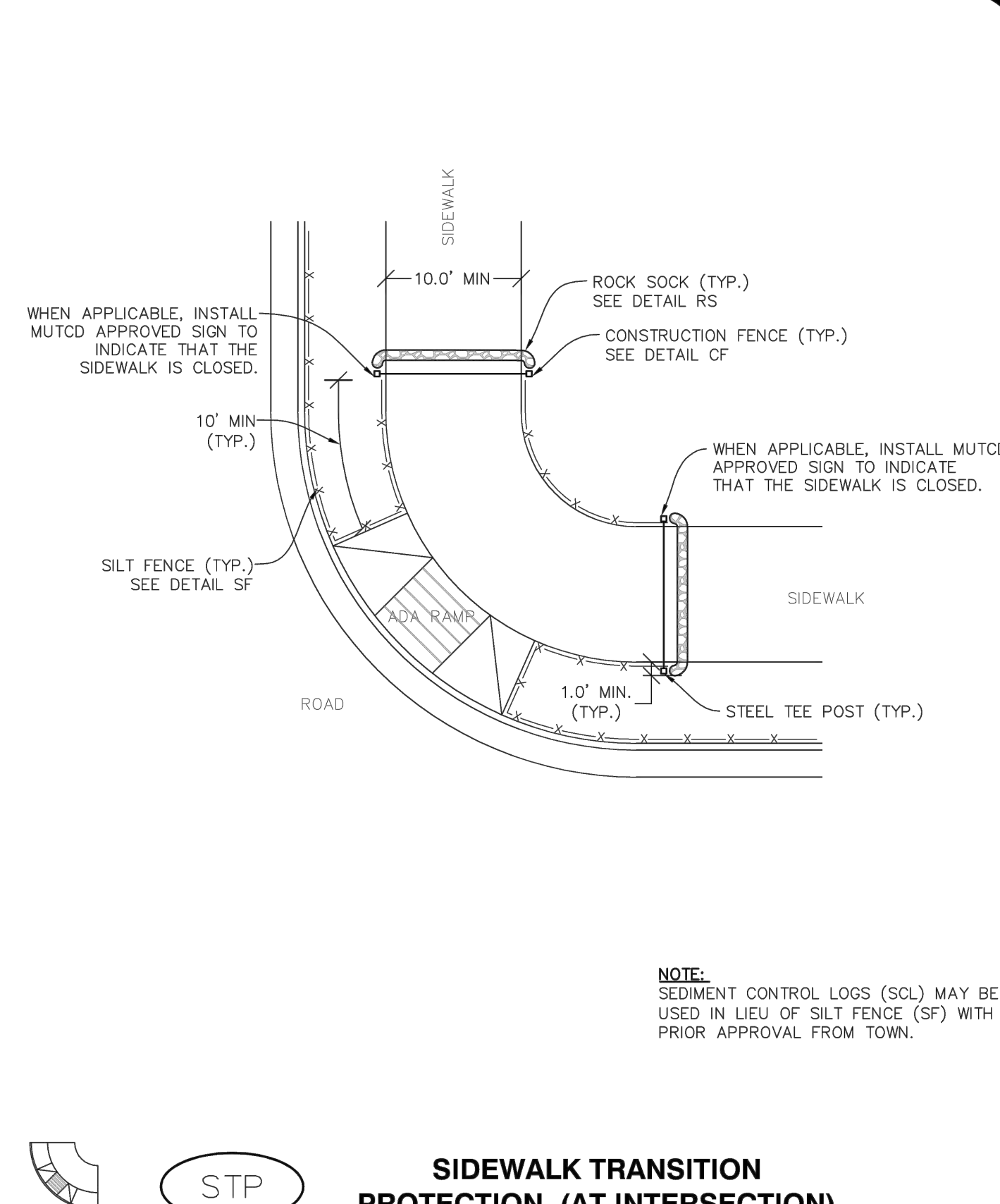
STABILIZED STAGING AREA INSTALLATION NOTES

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.

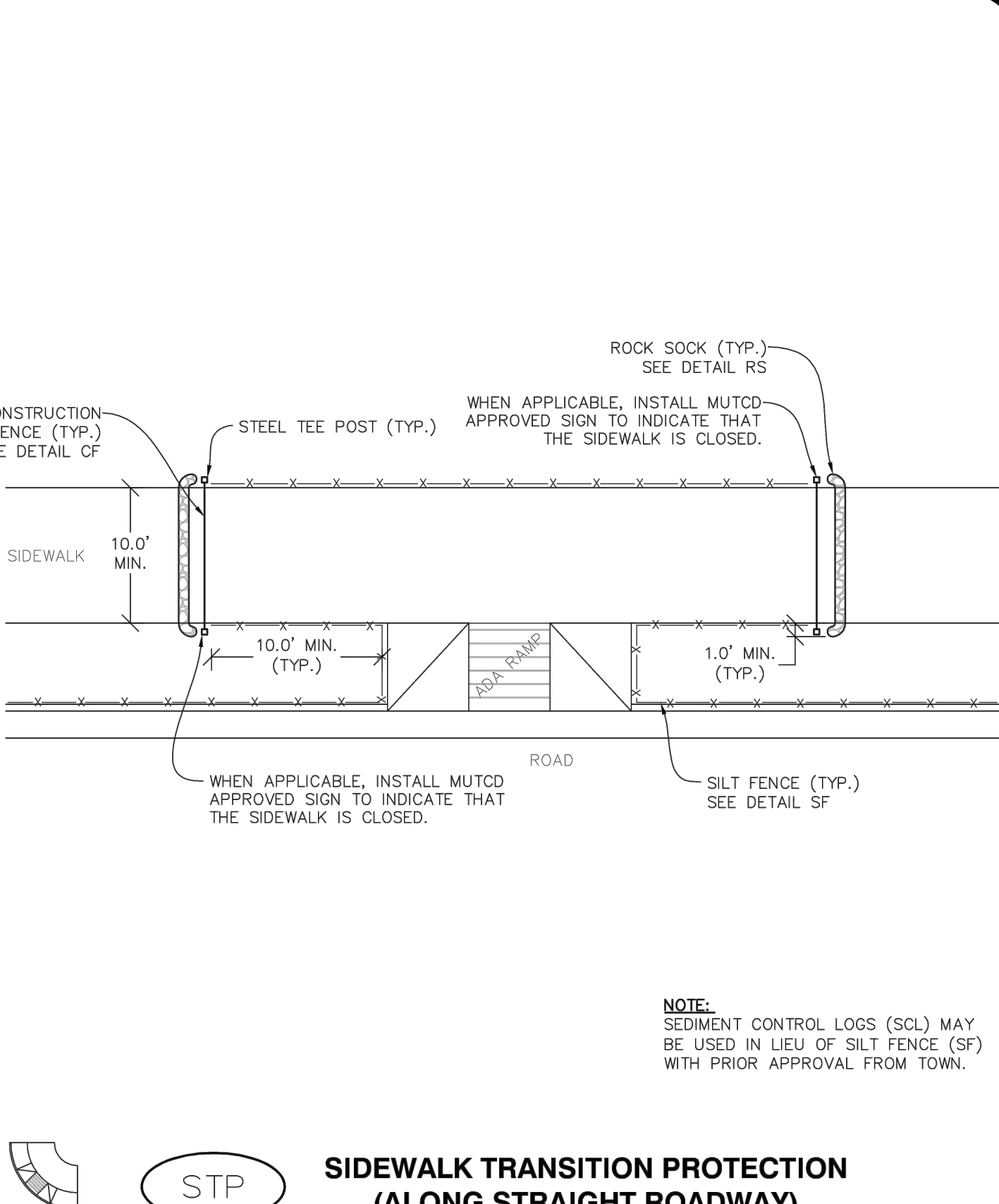
STABILIZED STAGING AREA INSPECTION AND MAINTENANCE NOTES

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.

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CBMP
CONSTRUCTION BEST MANAGEMENT PRACTICES
SSA
1 OF 2
Oct. 2013

CBMP
CONSTRUCTION BEST MANAGEMENT PRACTICES
SSA
2 OF 2
Oct. 2013

CBMP
CONSTRUCTION BEST MANAGEMENT PRACTICES
STP
1 OF 3
Oct. 2013

CBMP
CONSTRUCTION BEST MANAGEMENT PRACTICES
STP
2 OF 3
Oct. 2013

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

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Project Status TOWN REVIEW TOWN REVIEW

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

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

CBMP DETAILS

1

C3.9

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CBMP DETAILS

1

C3.10

TEMPORARY SEDIMENT BASIN INSTALLATION NOTES

- SEE CBMP PLAN FOR LOCATION(S) OF SEDIMENT BASIN(S).
- THE TEMPORARY SEDIMENT BASIN(S) SHALL BE INSTALLED AND FUNCTIONING PRIOR TO ANY OTHER GRADING ACTIVITIES.
- THE EXACT DIMENSIONS AND DETAILS OF THE TEMPORARY SEDIMENT BASIN SHALL BE DETERMINED BY THE DESIGN ENGINEER, IN ACCORDANCE WITH UDFCD VOLUME 3, AS AMENDED.
- EMBANKMENT MATERIAL SHALL CONSIST OF SOIL FREE OF DEBRIS, ORGANIC MATERIAL, AND ROCKS OR CONCRETE GREATER THAN 3" AND SHALL HAVE A MINIMUM OF 15% BY WEIGHT PASSING THE NO. 200 SIEVE.
- EMBANKMENT MATERIAL SHALL BE COMPACTED TO A MINIMUM OF 95% DENSITY, AND WITHIN +/- 2% OF OPTIMUM MOISTURE IN ACCORDANCE WITH ASTM D698.
- AN APPROPRIATELY SIZED DEWATERING BAG SHALL BE SECURED TO THE END OF THE DISCHARGE PIPE. THE DEWATERING BAG SHALL BE REPLACED ONCE SEDIMENT ACCUMULATION REACHES 50%.

TEMPORARY SEDIMENT BASIN INSPECTION AND MAINTENANCE NOTES

- THE EROSION CONTROL SUPERVISOR SHALL REGULARLY INSPECT THE TEMPORARY SEDIMENT BASIN.
- ACCUMULATED SEDIMENT SHALL BE REMOVED WHEN THE SEDIMENT REACHES A DEPTH OF 2.0', OR WITHIN 2.0' OF THE SPILLWAY CREST, OR AS OTHERWISE DIRECTED BY THE TOWN'S INSPECTOR.
- SEDIMENT BASINS SHALL REMAIN IN PLACE AND PROPERLY MAINTAINED UNTIL UPSTREAM 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.

CBMP | **TSB**
CONSTRUCTION BEST MANAGEMENT PRACTICES | 2 OF 3
Oct. 2013

TEMPORARY SEDIMENT BASIN

PLAN VIEW

TEMPORARY SEDIMENT BASIN

CBMP | **TSB**
CONSTRUCTION BEST MANAGEMENT PRACTICES | 1 OF 3
Oct. 2013

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.

CBMP | **STP**
CONSTRUCTION BEST MANAGEMENT PRACTICES | 3 OF 3
Oct. 2013

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" GRANITE WITH A FRACTURED FACE (ALL SIDES).

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.

CBMP | **VTC**
CONSTRUCTION BEST MANAGEMENT PRACTICES | 3 OF 3
Oct. 2013

VEHICLE TRACKING CONTROL

VEHICLE TRACKING CONTROL

CBMP | **VTC**
CONSTRUCTION BEST MANAGEMENT PRACTICES | 2 OF 3
Oct. 2013

VEHICLE TRACKING CONTROL

VEHICLE TRACKING CONTROL

CBMP | **VTC**
CONSTRUCTION BEST MANAGEMENT PRACTICES | 1 OF 3
Oct. 2013

VEHICLE TRACKING CONTROL

VEHICLE TRACKING CONTROL

CBMP | **VTC**
CONSTRUCTION BEST MANAGEMENT PRACTICES | 3 OF 3
Oct. 2013

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NEW HORIZON ACADEMY -
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SEH Project: NHOAC 156217
Checked By: DJH
Drawn By: AMP

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

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

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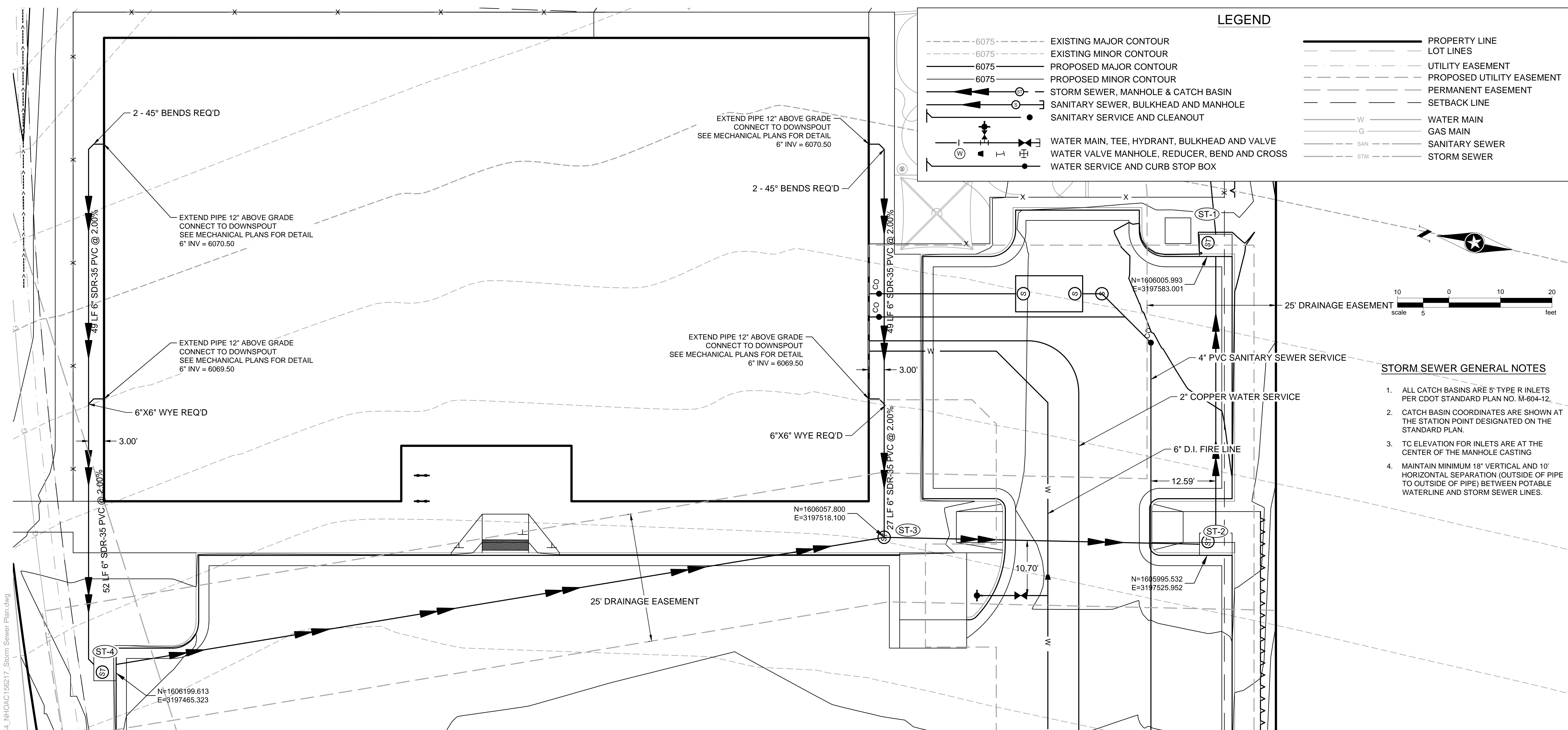
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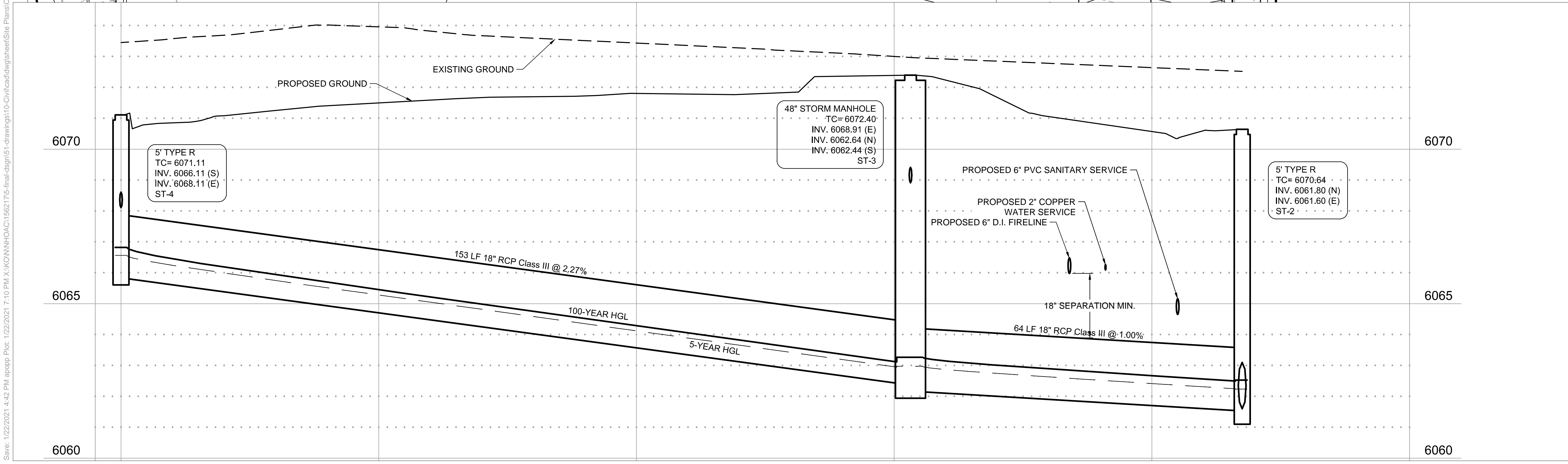
STORM SEWER PLAN -
PARKING LOT

1

C4.0



- STORM SEWER GENERAL NOTES**
1. ALL CATCH BASINS ARE 5' TYPE R INLETS PER CDOT STANDARD PLAN NO. M-604-12.
 2. CATCH BASIN COORDINATES ARE SHOWN AT THE STATION POINT DESIGNATED ON THE STANDARD PLAN.
 3. TC ELEVATION FOR INLETS ARE AT THE CENTER OF THE MANHOLE CASTING
 4. MAINTAIN MINIMUM 18' VERTICAL AND 10' HORIZONTAL SEPARATION (OUTSIDE OF PIPE TO OUTSIDE OF PIPE) BETWEEN POTABLE WATERLINE AND STORM SEWER LINES.



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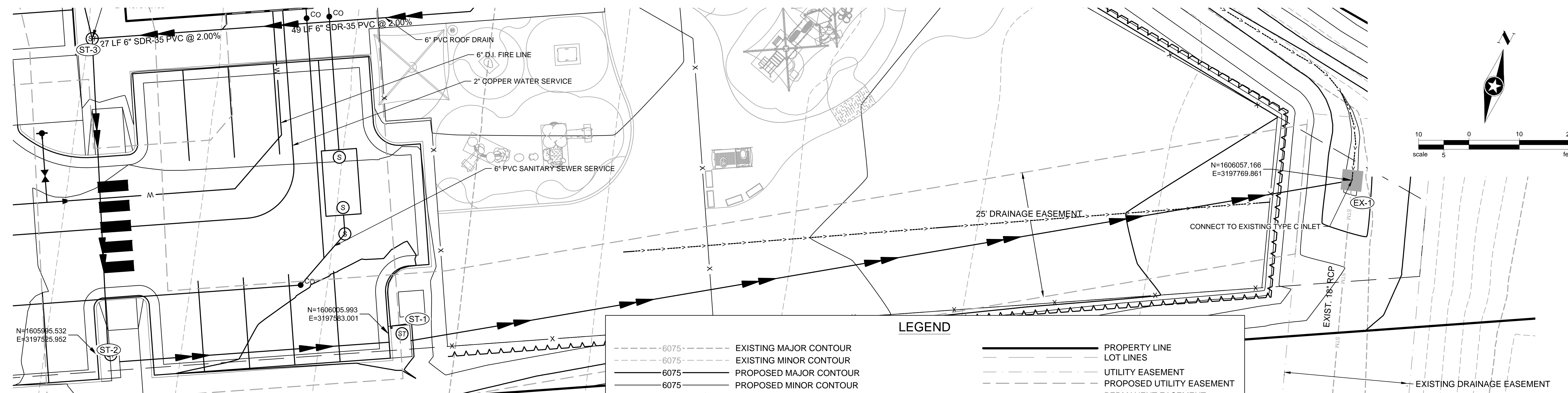
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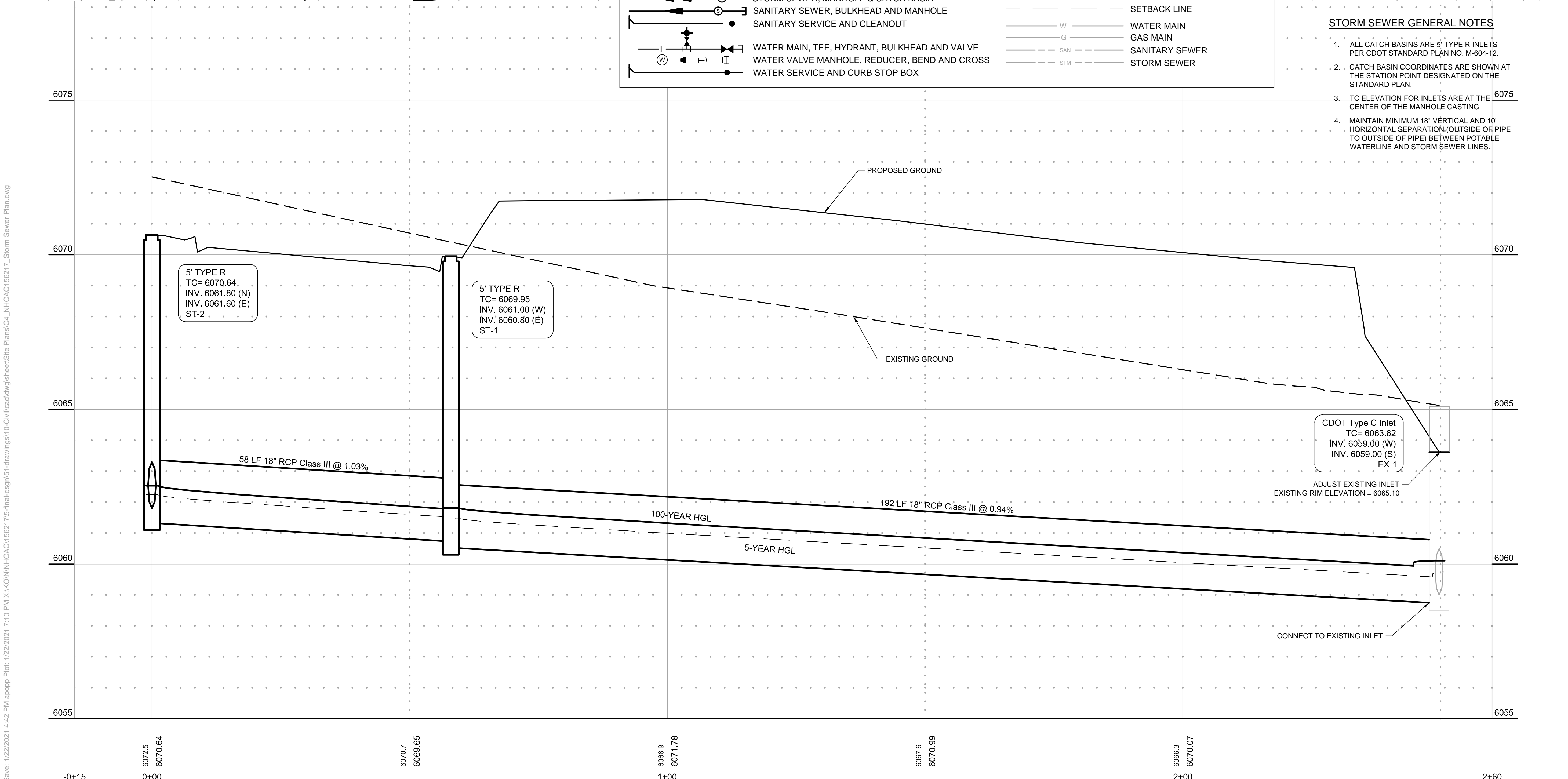
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LEGEND			
	EXISTING MAJOR CONTOUR		PROPERTY LINE
	EXISTING MINOR CONTOUR		LOT LINES
	PROPOSED MAJOR CONTOUR		UTILITY EASEMENT
	PROPOSED MINOR CONTOUR		PROPOSED UTILITY EASEMENT
	STORM SEWER, MANHOLE & CATCH BASIN		PERMANENT EASEMENT
	SANITARY SEWER, BULKHEAD AND MANHOLE		SETBACK LINE
	SANITARY SERVICE AND CLEANOUT		WATER MAIN
	WATER MAIN, TEE, HYDRANT, BULKHEAD AND VALVE		GAS MAIN
	WATER VALVE MANHOLE, REDUCER, BEND AND CROSS		SANITARY SEWER
	WATER SERVICE AND CURB STOP BOX		STORM SEWER

STORM SEWER GENERAL NOTES

- ALL CATCH BASINS ARE 5' TYPE R INLETS PER CDOT STANDARD PLAN NO. M-604-12.
- CATCH BASIN COORDINATES ARE SHOWN AT THE STATION POINT DESIGNATED ON THE STANDARD PLAN.
- TC ELEVATION FOR INLETS ARE AT THE CENTER OF THE MANHOLE CASTING
- MAINTAIN MINIMUM 18" VERTICAL AND 10' HORIZONTAL SEPARATION (OUTSIDE OF PIPE TO OUTSIDE OF PIPE) BETWEEN POTABLE WATERLINE AND STORM SEWER LINES.



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NEW HORIZON ACADEMY - DOUGLAS 234 FILING, NO. 6
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Project Status Issue Date
 TOWN REVIEW 8/26/2020
 TOWN REVIEW 1/22/2021

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

STORM SEWER PLAN - PLAYGROUND

1

C4.1

NOT FOR CONSTRUCTION

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

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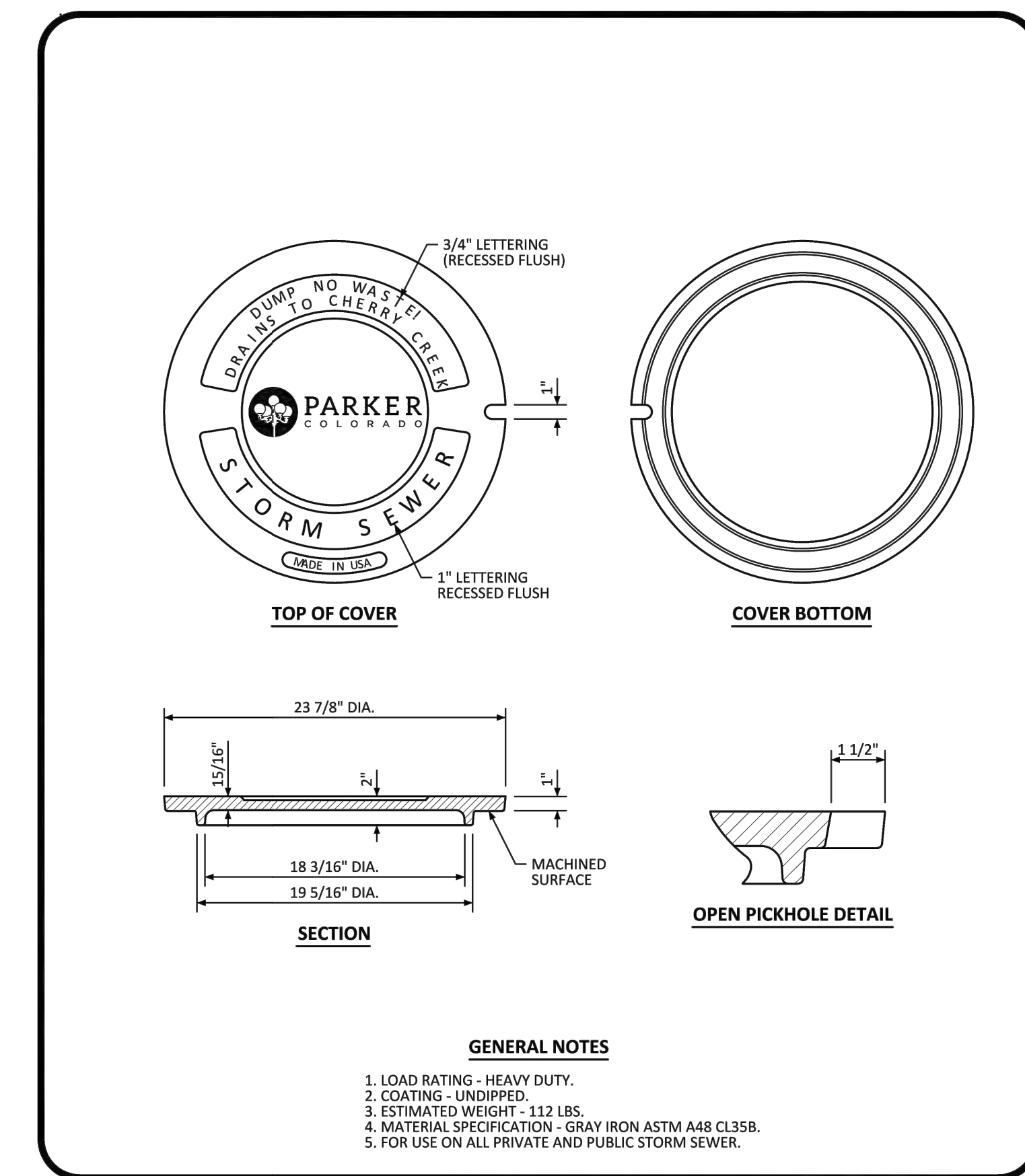
Revision Issue

Project Status
TOWN REVIEW
TOWN REVIEW

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

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

STORM SEWER DETAILS



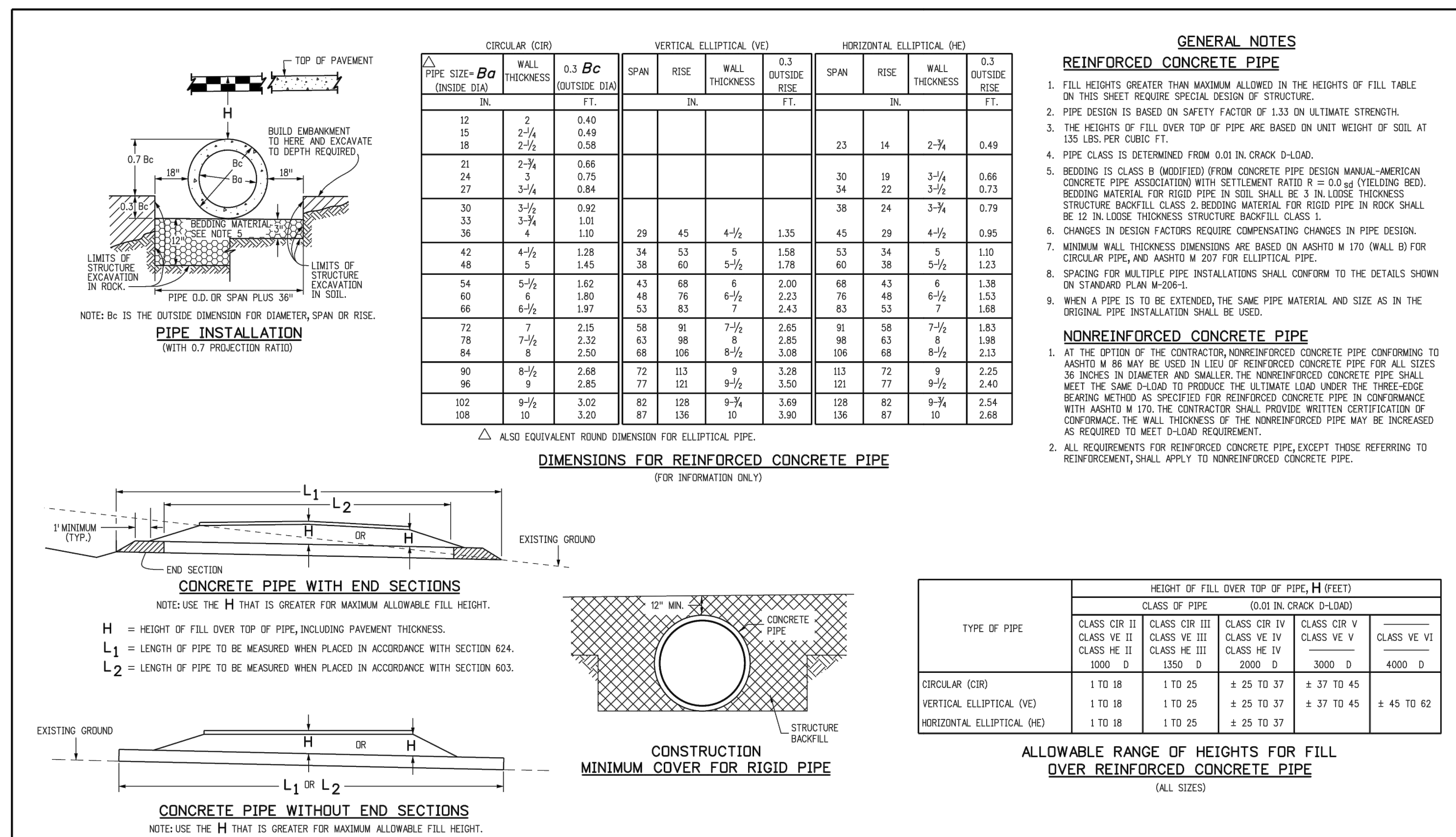
PARKER COLORADO

MANHOLE COVER STANDARD DETAIL

DATE: DECEMBER 2016

DETAIL: 33

1 OF 1



Computer File Information
Creation Date: 07/31/19
Designer Initials: JBK
Last Modification Date: 07/31/19
Drafter Initials: LTA
CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English

SHEET REVISIONS

Date:	Comments:

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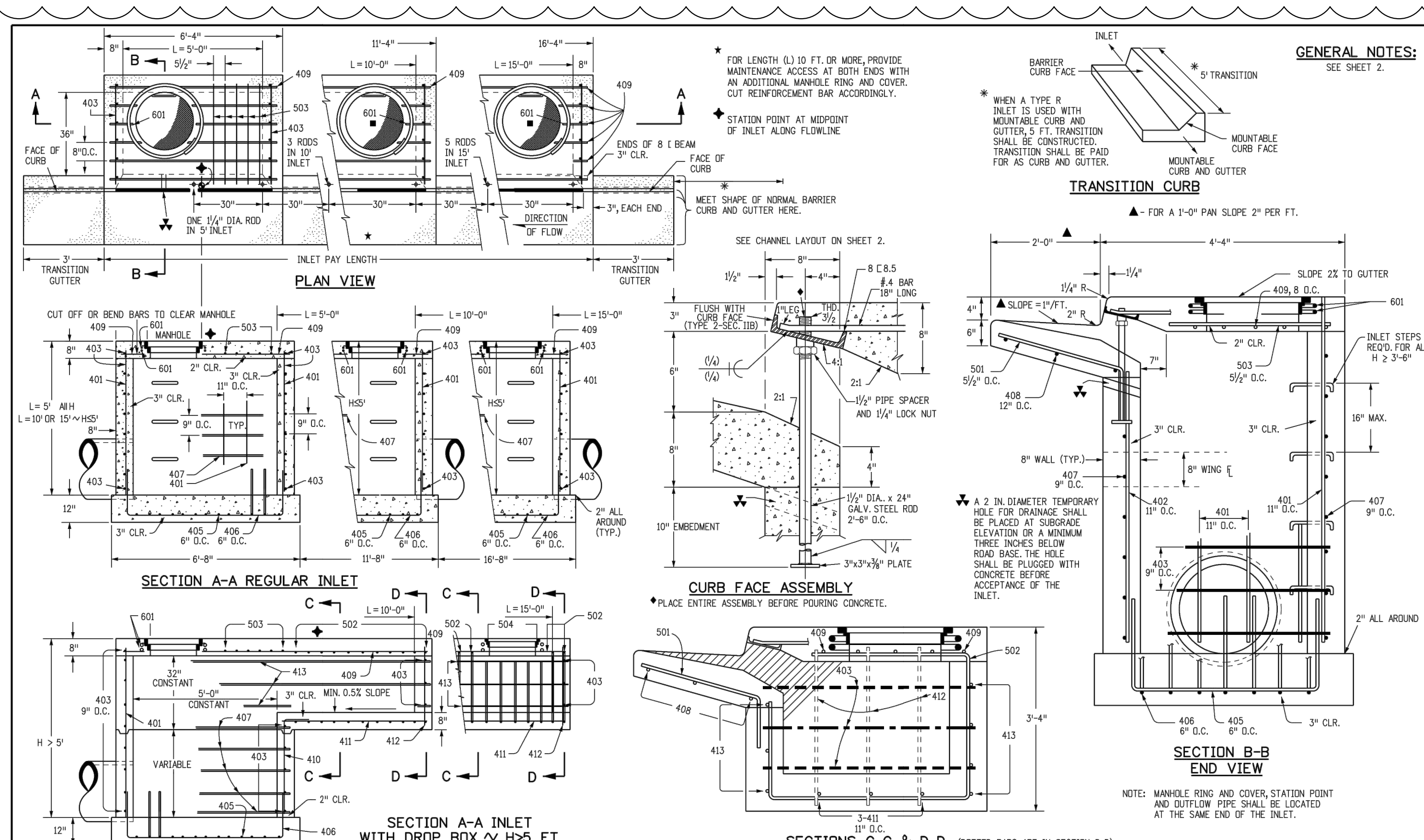
Project Development Branch JBK

REINFORCED CONCRETE PIPE

STANDARD PLAN NO. M-603-2

Standard Sheet No. 1 of 1

Issued by the Project Development Branch July 31, 2019 Project Sheet Number:



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CAD Ver.: MicroStation V8 Scale: Not to Scale Units: English

SHEET REVISIONS

Date:	Comments:

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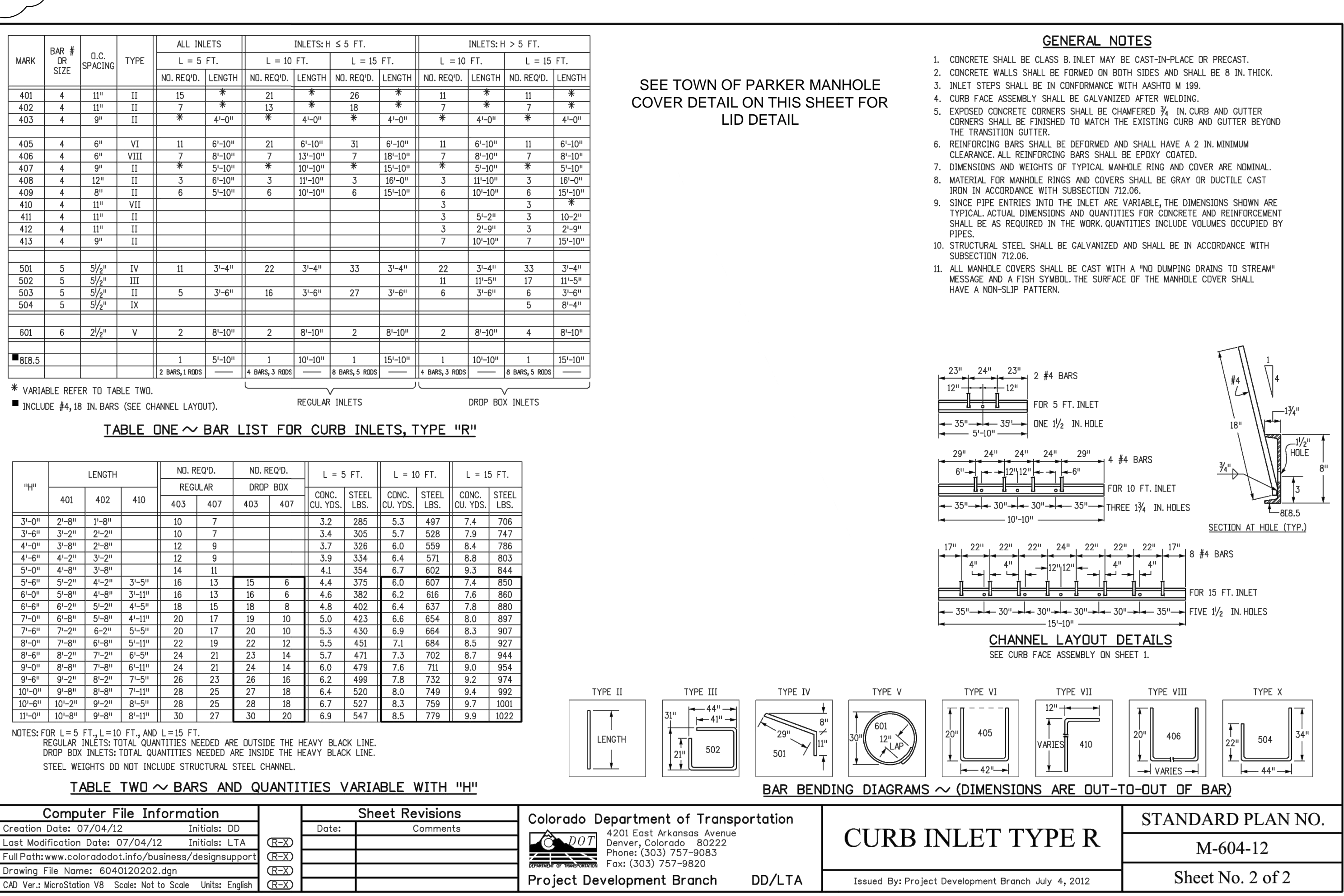
Project Development Branch DD/LTA

CURB INLET TYPE R

STANDARD PLAN NO. M-604-12

Sheet No. 2 of 2

Issued By: Project Development Branch July 4, 2012



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Project Development Branch DD/LTA

CURB INLET TYPE R

STANDARD PLAN NO. M-604-12

Sheet No. 2 of 2

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SEH Project Checked By Drawn By

NHOAC 156217
DEH
AMP

Project Status
TOWN REVIEW
TOWN REVIEW

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

Revision Issue
Description
TOWN COMMENTS

Rev. # 1
Date 1/22/21

STORM SEWER DETAILS

MANHOLE BOX BASE

GENERAL NOTES

- SINCE ALL PIPE ENTRIES INTO THE BASE ARE VARIABLE, THE DIMENSIONS SHOWN ARE TYPICAL ACTUAL DIMENSIONS AND QUANTITIES FOR CONCRETE AND REINFORCEMENT SHALL BE AS REQUIRED IN THE WORK.
- THE PRECAST FLAT TOP MAY BE USED ON ANY MANHOLE, THE ECCENTRIC CONE MAY BE USED WHEN THE MANHOLE 1/4" HEIGHT IS AT LEAST 8 FT.
- THE MANHOLE RING FRAME SHALL BE SET IN A BED OF GROUT. THE FRAME SHALL BE SURROUNDED WITH A CEMENT GROUT IN UNPAVED AREA, OR A CONCRETE COLLAR IN PAVED AREA. SEE DETAILS ON SHEETS 2 AND 3.
- DESIGN OF BOX BASE IS BASED ON STRAIGHT RUNS OF PIPE OR CHANGE IN DIRECTION OF LESS THAN 45°. SPECIAL DESIGN IS REQUIRED FOR 45° OR GREATER.
- PRECAST MANHOLES AND REINFORCEMENT SHALL CONFORM TO AASHTO M 199 (ASTM C 478).
- CAST-IN-PLACE MANHOLES SHALL BE CLASS B CONCRETE.
- STEPS SHALL BE REQUIRED WHEN THE MANHOLE DEPTH EXCEEDS 3 FT. - 6 IN. AND SHALL CONFORM TO AASHTO M 199.
- ALL REINFORCING STEEL SHALL BE GRADE 60 AND EPOXY COATED. VERTICAL STEEL SHALL BE PLACED AT CENTERLINE OF WALL. ALL BARS SHALL HAVE A 2 IN. MINIMUM CLEARANCE.
- ALL PIPE ENTRIES INTO THE BASE OF MANHOLE SHALL BE CONNECTED BY OPEN CHANNELIZATION ADJUSTED FOR PIPE SIZE, SLOPE, AND DIRECTION OF FLOW. DETAILS SHOW ARE TYPICAL FOR INSTALLATIONS WITH ALL INVERTS OF SAME RELATIVE ELEVATION. FOR EXCESSIVE ELEVATION DIFFERENCE BETWEEN INVERTS, SPECIAL BASE CHANNEL DETAILS WILL BE SHOWN ON THE PLANS.
- FLOW CHANNELS AND INVERTS SHALL BE FORMED BY SHAPING WITH CLASS B CONCRETE OR APPROVED GROUT.
- STUB-OUTS SHALL EXTEND 2 FT. MINIMUM BEYOND OUTSIDE WALL SURFACE OF MANHOLE AND BE SATISFACTORILY PLUGGED.
- THE SLOPE OF THE MANHOLE COVER SHALL MATCH THE ROADWAY PROFILE AND CROSS SLOPE.
- WHEN FINAL GRADE IS PAVEMENT SURFACE, RECESS MANHOLE RING AND COVER 1/4" MIN. TO 1/2" MAX.

MARK	SIZE	TYPE	WT. #/FT.	BARS	54"	60"	66"	72"	84"	96"	FORMULAS
401	4	I	0.668	(NO. REQ'D. LENGTH) * (WT. #/FT.)	18	18	18	18	18	18	401 BAR LENGTH = 32" + 2W + I.D.
402	4	III	0.668	(NO. REQ'D. LENGTH) * (WT. #/FT.)	5	5	5	5	5	5	402 BAR LENGTH = I.D. + 2W
501	5	I	1.043	(NO. REQ'D. LENGTH) * (WT. #/FT.)	17	17	17	17	17	17	501 BAR LENGTH = 24" + I.D. + 2W
502	5	I	1.043	(NO. REQ'D. LENGTH) * (WT. #/FT.)	22	22	22	22	22	22	502 NUMBER BARS REQ'D. = 3 + (24+I.D.+2W) / 5"
503	5	II	1.043	(NO. REQ'D. LENGTH) * (WT. #/FT.)	16	16	16	16	16	16	503 NUMBER BARS REQ'D. = 2 * (13+I.D.+2W) / 5"
504	5	I	1.043	(NO. REQ'D. LENGTH) * (WT. #/FT.)	12	12	12	12	12	12	504 NUMBER BARS REQ'D. = 2 * (2W+I.D.-4) / 5"
1101	11	I	5.313	(NO. REQ'D. LENGTH) * (WT. #/FT.)	7-2"	7-9"	8-4"	8-11"	10-3"	11-3"	1101 BAR LENGTH = 21" + I.D. + 2W
1102	11	I	5.313	(NO. REQ'D. LENGTH) * (WT. #/FT.)	2-8"	2-8"	2-8"	2-8"	2-8"	2-8"	TYPE I
1103	11	I	5.313	(NO. REQ'D. LENGTH) * (WT. #/FT.)	5-0"	5-0"	5-0"	5-0"	5-0"	5-0"	TYPE II
REINFORCING STEEL TOTAL					95.6	107.5	127.2	150.0	180.2	180.0	
CONCRETE - CUBIC YARDS - TOTAL					6.0	6.6	7.3	8.0	9.5	11.1	

NOTE: QUANTITIES ARE BASED ON SAME SIZE PIPE ENTRANCE TO AND EXIT FROM, BASE AND A 4 FT. MANHOLE ENTRANCE INTO TOP SLAB OF BASE.

QUANTITIES FOR CONCRETE MANHOLE BOX BASE

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Creation Date: 07/04/12	Initials: DD	Date:	Comments:	4201 East Arkansas Avenue Denver, Colorado 80222 Phone: (303) 757-9083 Fax: (303) 757-9820		M-604-20	
Last Modification Date: 07/04/12	Initials: LTA			Project Development Branch DD/LTA		Sheet No. 1 of 3	
Full Path: www.coloradodot.info/business/designsupport						Issued By: Project Development Branch July 4, 2012	
Drawing File Name: M06040200103.dgn							
CAD Ver.: MicroStation V8	Scale: Not to Scale	Units: English					

T-BASE MANHOLES NOTES

- THE T-BASE SECTION SHALL BE SHOP-FABRICATED FOR DELIVERY TO THE CONSTRUCTION SITE AS A COMPLETE UNIT.
- THESE DETAILS SHOW ONLY THE CONCEPTUAL AND STANDARD DIMENSIONAL REQUIREMENTS FOR TYPE T-BASE MANHOLES. THE CONTRACTOR SHALL FURNISH DETAILED SHOP DRAWINGS FOR APPROVAL, PRIOR TO FABRICATION. THE DETAILS SHOWN HEREIN APPLY ONLY TO 48 IN. AND GREATER DIAMETER PIPES.
- EXCEPT FOR CLASS OF PIPE SPECIFICATIONS FOR THE MANHOLE SHALL BE THE SAME AS THESE REQUIRED FOR THE ADJOINING PIPE.
- THE T-BASE SECTION SHALL MAINTAIN ITS INTERNAL SHAPE AND FLOW AREA. GROUTING OR FILLING SHALL BE APPLIED SO AS TO NOT DISTURB THE NORMAL FLOW OR REDUCE THE AREA.

MANHOLE T-BASE

MANHOLE RING AND COVER

FLAT TOP SECTION DETAIL

SECTION A-A MANHOLE RING AND COVER

SECTION B-B

SECTION C-C CAST-IN-PLACE SLAB BASE

SECTION D-D

SECTION E-E PRECAST SLAB BASE

SECTION F-F ADJUST MANHOLE 20 IN. OR LESS

SECTION F-F MODIFY MANHOLE GREATER THAN 20 IN.

SECTION F-F CIRCULAR RIGID PIPE (LONGITUDINAL SECTION)

SECTION F-F CIRCULAR RIGID PIPE (TRANSVERSE SECTION)

LEGEND

- SUITABLE SUBGRADE
- GRANULAR BEDDING MATERIAL
- CONCRETE

PRECAST MANHOLE BASES NOTES:

- THE BASE SLAB SHALL BE POURED MONOLITHICALLY WITH BOTTOM RISER SECTION.
- PRECAST MANHOLE BASES SHALL FIT THE CONDITIONS AND LOCATIONS FOR WHICH THEY ARE INTENDED WITHOUT ANY FIELD MODIFICATIONS. ANY MANHOLE BASE WHICH REQUIRES FIELD CUTTING OR MODIFICATION IN ORDER TO FIT THE LOCATIONS INTENDED WILL BE REJECTED BY THE ENGINEER AND REMOVED AND REPLACED BY THE CONTRACTOR AT NO COST TO THE DEPARTMENT.
- PRECAST MANHOLE BASES SHALL BE BEDDED ON AN APPROVED GRANULAR BEDDING MATERIAL AS SHOWN ABOVE.

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Full Path: www.coloradodot.info/business/designsupport						Issued By: Project Development Branch July 4, 2012	
Drawing File Name: 6040200303.dgn							
CAD Ver.: MicroStation V8	Scale: Not to Scale	Units: English					

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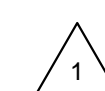
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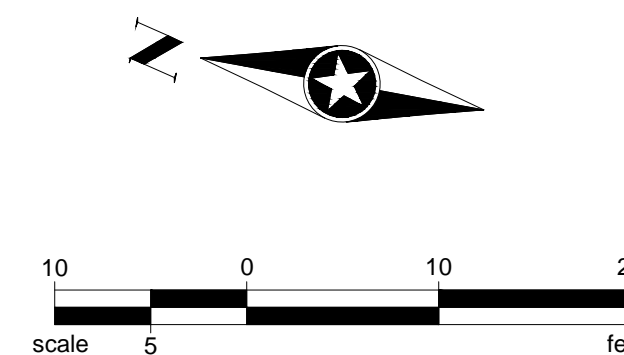
Project Status: TOWN REVIEW
Issue Date: 8/26/2020
TOWN REVIEW: 1/22/2021

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

SIGNAGE PLAN



C5.0



LEGEND

---	PROPERTY LINE
---	LOT LINES
---	UTILITY EASEMENT
---	PROPOSED UTILITY EASEMENT
---	PERMANENT EASEMENT
---	SETBACK LINE
W	WATER MAIN
G	GAS MAIN
SAN	SANITARY SEWER
STM	STORM SEWER

ACCESSIBLE PARKING, 12'X18' R7-8
"WHEELCHAIR ACCESS AISLE, ABSOLUTELY NO PARKING" SIGN
ACCESSIBLE PARKING, 12'X18' R7-8
VAN ACCESSIBLE, 12'X6' R7-8B

24-INCH WHITE BLOCK (TYP)
CENTER ON VEHICLE WHEEL PATH

INTERNATIONAL SYMBOL OF ACCESSIBILITY,
WHITE PAINT, 3" MINIMUM STROKE WIDTH,
28" HIGH BY 24" WIDE MINIMUM (TYP)

4" WHITE STRIPE
SPACED 4' O.C. (TYP)

NO PARKING FIRE LANE SIGN, 18"X24" R8-31

NO PARKING FIRE LANE SIGN, 18"X24" R8-31

STOP SIGN, 30"X30" R1-1

24-INCH WHITE BLOCK (TYP)
CENTER ON VEHICLE WHEEL PATH

24-INCH WHITE STOP LINE

Save: 1/22/2021 4:49 PM apppp Plot: 1/22/2021 7:13 PM X:\KONNHOAC\1562175-final-dsgn\51-drawings\10-Civil\cd\dwg\sheet\Site Plans\C5_NHOAC\156217_Signage Plan.dwg

NOTE:
ALL PARKING STALLS ARE 9' X 18'

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

Designer: Alex Popp
 Company: SEH Inc
 Date: 1/22/2021
 Project: New Horizon Academy
 Location: Parker, CO

Version 2.00 released May 2017

Cells of this color are for required user-input
 Cells of this color are for optional override values
 Cells of this color are for calculated results based on overrides

$$t_i = \frac{0.395(1.1 - C_s)\sqrt{L_i}}{S^{0.33}}$$

$$t_t = \frac{L_t}{60K\sqrt{S_t}} = \frac{L_t}{60V_t}$$

Computed $t_c = t_i + t_t$

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

$t_{\text{minimum}} = 5$ (urban)
 $t_{\text{minimum}} = 10$ (non-urban)

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)

1-hour rainfall depth, P1 (in) =	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr
	0.99	1.39				2.60	

Rainfall Intensity Equation Coefficients =

$$I(\text{in/hr}) = \frac{a * P_1}{(b + t_c)^c}$$

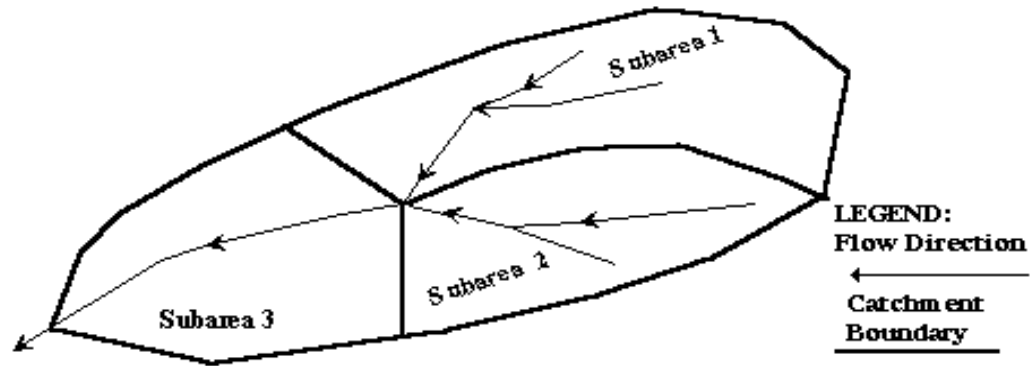
Q(cfs) = CIA

Subcatchment Name	Area (ac)	NRCS Hydrologic Soil Group	Percent Imperviousness	Runoff Coefficient, C							Overland (Initial) Flow Time					Channelized (Travel) Flow Time					Time of Concentration			Rainfall Intensity, I (in/hr)							Peak Flow, Q (cfs)									
				2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr	Overland Flow Length L _i (ft)	U/S Elevation (ft) (Optional)	D/S Elevation (ft) (Optional)	Overland Flow Slope S _i (ft/ft)	Overland Flow Time t _i (min)	Channelized Flow Length L _i (ft)	U/S Elevation (ft) (Optional)	D/S Elevation (ft) (Optional)	Channelized Flow Slope S _i (ft/ft)	NRCS Conveyance Factor K	Channelized Flow Velocity V _i (ft/sec)	Channelized Flow Time t _i (min)	Computed t _c (min)	Regional t _c (min)	Selected t _c (min)	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr	500-yr	
EX-1	0.25	B	25.0	0.17	0.19	0.26	0.41	0.47	0.54	0.63	145.00			0.020	15.75	0.00			0.100	20	6.32	0.00	15.75	21.75	15.75	2.20	3.08					5.77		0.09	0.15					0.78
EX-1 SWALE	0.15	B	2.0	0.01	0.01	0.07	0.26	0.34	0.44	0.54	10.00			0.100	2.91	340.00			0.020	15	2.12	2.67	5.58	29.98	15.00	2.25	3.16					5.90		0.09	0.15					0.80
ST-1	0.18	B	90.0	0.74	0.76	0.78	0.81	0.83	0.84	0.87	75.00			0.040	3.32	0.00			0.100	20	6.32	0.00	6.65	10.70	5.00	3.36	4.71					8.82		0.45	0.65					1.34
ST-2	0.27	B	90.0	0.41	0.43	0.47	0.57	0.61	0.66	0.72	115.00			0.040	4.12	0.00			0.100	20	6.32	0.00	6.65	10.70	5.00	3.36	4.71					8.82		0.67	0.97					2.01
ST-3 ROOF	0.15	B	90.0	0.62	0.64	0.67	0.72	0.75	0.78	0.81	115.00			0.100	5.63	0.00			0.100	20	6.32	0.00	3.04	10.70	5.00	3.36	4.71					8.82		0.56	0.81					1.85
ST-4	0.43	D	90.0	0.74	0.76	0.78	0.81	0.83	0.84	0.87	115.00			0.100	3.04	0.00			0.100	20	6.32	0.00	3.04	10.70	5.00	3.36	4.71					8.82		0.38	0.55					1.14
ST-4 ROOF	0.15	D	90.0	0.74	0.77	0.79	0.82	0.84	0.85	0.87	150.00			0.030	5.10	0.00			0.100	20	6.32	0.00	8.18	10.70	5.10	3.34	4.69					8.77		1.06	1.55					3.21
OFFSITE NORTH	0.02	D	90.0	0.54	0.57	0.61	0.69	0.72	0.75	0.79	29.00			0.100	3.61	0.00			0.100	7	2.21	0.00	3.61	10.70	5.00	3.36	4.71					8.82		0.78	1.15					2.85
OFFSITE EAST	0.14	B	2.0	0.27	0.31	0.38	0.51	0.56	0.62	0.69	10.00			0.200	2.31	0.00			0.100	7	2.21	0.00	2.31	25.66	10.00	2.68	3.76					7.03		0.00	0.01					0.44
OFFSITE SOUTH	0.01	B	2.0	0.01	0.01	0.07	0.26	0.34	0.44	0.54	10.00			0.200	2.31	0.00			0.100	7	2.21	0.00	1.55	25.66	10.00	2.68	3.76					7.03		0.00	0.00					0.03
EXISTING SITE	1.76	B	2.0	0.34	0.37	0.44	0.55	0.60	0.65	0.72	300.00			0.040	1.55	0.00			0.100	5	1.58	0.00	21.53	25.66	21.53	1.87	2.63				4.92		0.03	0.06					3.77	
				0.01	0.01	0.07	0.26	0.34	0.44	0.54				0.200	2.31	0.00			0.100	7	2.21	0.00	2.31	25.66	10.00	2.68	3.76					7.03		0.01	0.01					0.05
				0.01	0.01	0.07	0.26	0.34	0.44	0.54				0.200	2.31	0.00			0.100	7	2.21	0.00	2.31	25.66	10.00	2.68	3.76					7.03		0.03	0.06					3.92

Area-Weighted Runoff Coefficient Calculations

Version 2.00 released May 2017

Designer: Alex Popp
Company: SEH Inc
Date: 1/22/2021
Project: New Horizon Academy
Location: Parker, CO



Subcatchment Name
EX-1 SWALE

Cells of this color are for required user-input
 Cells of this color are for optional override values
 Cells of this color are for calculated results based on overrides

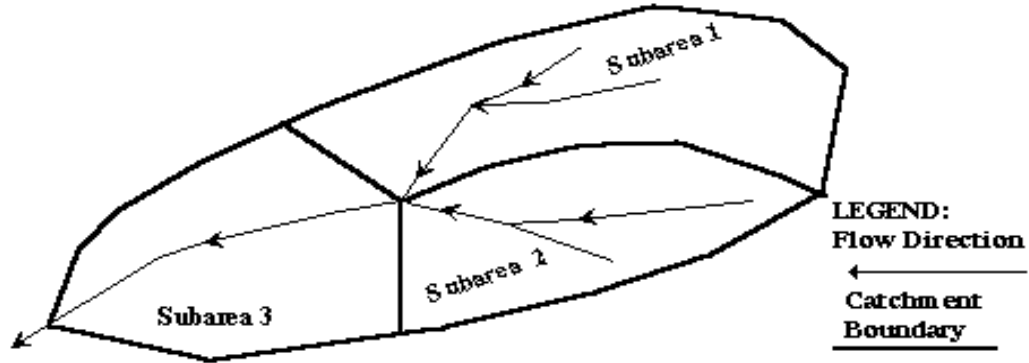
See sheet "Design Info" for imperviousness-based runoff coefficient values.

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	B	90.0	0.74	0.76	0.78	0.81	0.83	0.84	0.87
LAWN	0.13	B	2.0	0.01	0.01	0.07	0.26	0.34	0.44	0.54
Total Area (ac)	0.15			0.10	0.10	0.16	0.33	0.40	0.48	0.58
			Area-Weighted C							
			Area-Weighted Override C	0.10	0.10	0.16	0.33	0.40	0.48	0.58

Area-Weighted Runoff Coefficient Calculations

Version 2.00 released May 2017

Designer: Alex Popp
Company: SEH Inc
Date: 1/22/2021
Project: New Horizon Academy
Location: Parker, CO



Subcatchment Name
ST-1

Cells of this color are for required user-input
Cells of this color are for optional override values
Cells of this color are for calculated results based on overrides

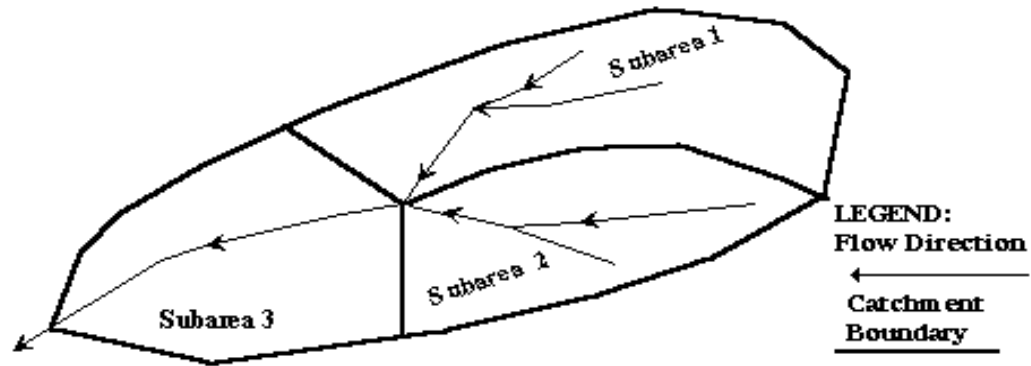
See sheet "Design Info" for imperviousness-based runoff coefficient values.

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
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

Designer: Alex Popp
Company: SEH Inc
Date: 1/22/2021
Project: New Horizon Academy
Location: Parker, CO



Subcatchment Name
ST-2

Cells of this color are for required user-input
 Cells of this color are for optional override values
 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
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			0.62	0.64	0.67	0.72	0.75	0.78	0.81
			Area-Weighted C							
			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

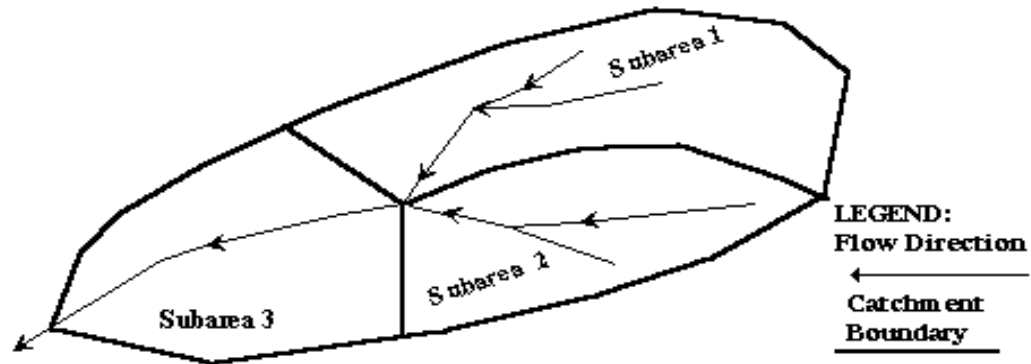
Designer: Alex Popp

Company: SEH Inc

Date: 1/22/2021

Project: New Horizon Academy

Location: Parker, CO



Subcatchment Name
ST-4

Cells of this color are for required user-input
 Cells of this color are for optional override values
 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
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

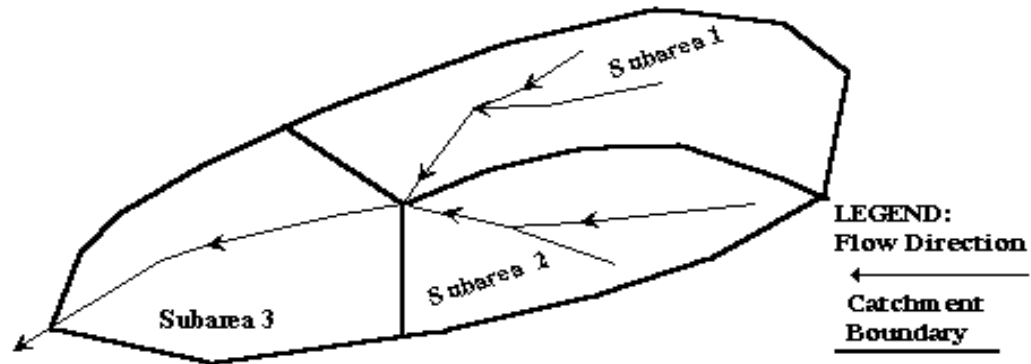
Designer: Alex Popp

Company: SEH Inc

Date: 1/22/2021

Project: New Horizon Academy

Location: Parker, CO



Subcatchment Name
OFFSITE NORTH

Cells of this color are for required user-input
 Cells of this color are for optional override values
 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	0.01	D	90.0	0.74	0.77	0.79	0.82	0.84	0.85	0.87
LAWN	0.01	D	2.0	0.01	0.05	0.15	0.33	0.40	0.49	0.59
Total Area (ac)	0.02			0.27	0.31	0.38	0.51	0.56	0.62	0.69
			Area-Weighted C							
			Area-Weighted Override C	0.27	0.31	0.38	0.51	0.56	0.62	0.69

Area-Weighted Runoff Coefficient Calculations

Version 2.00 released May 2017

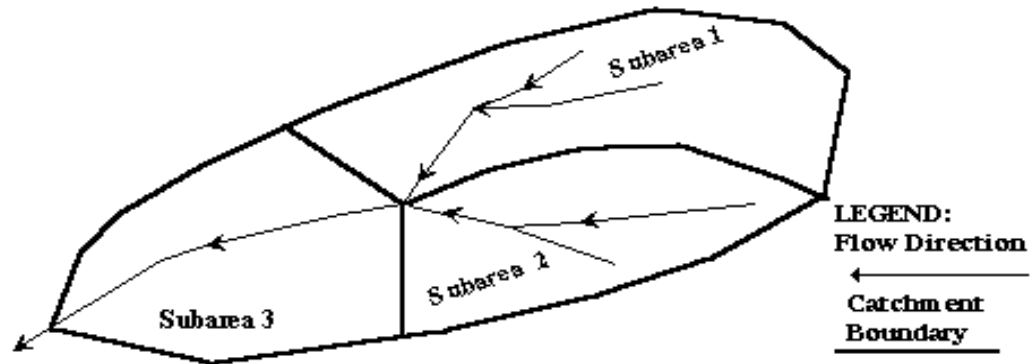
Designer: Alex Popp

Company: SEH Inc

Date: 1/22/2021

Project: New Horizon Academy

Location: Parker, CO



Subcatchment Name
OFFSITE SOUTH

Cells of this color are for required user-input
 Cells of this color are for optional override values
 Cells of this color are for calculated results based on overrides

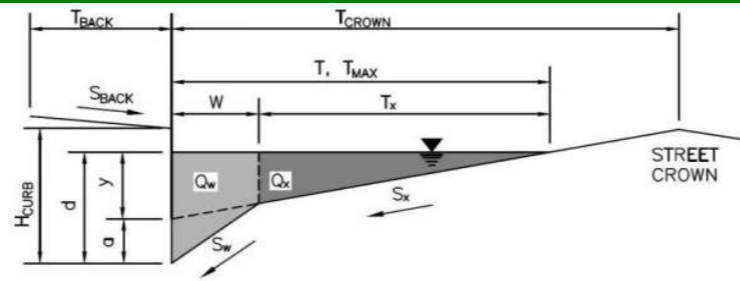
See sheet "Design Info" for imperviousness-based runoff coefficient values.

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	0.00	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			0.34	0.37	0.44	0.55	0.60	0.65	0.72
			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

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

	Minor Storm	Major Storm	
$T_{MAX} =$	18.0	18.0	ft

Max. Allowable Depth at Gutter Flowline for Minor & Major Storm

	Minor Storm	Major Storm	
$d_{MAX} =$	6.0	6.0	inches

Check boxes are not applicable in SUMP conditions

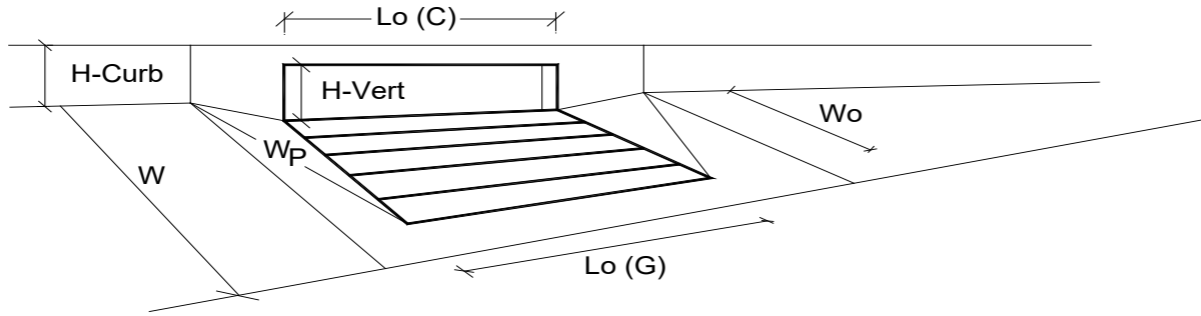
MINOR STORM Allowable Capacity is based on Depth Criterion

MAJOR STORM Allowable Capacity is based on Depth Criterion

	Minor Storm	Major Storm	
$Q_{allow} =$	SUMP	SUMP	cfs

INLET IN A SUMP OR SAG LOCATION

Version 4.06 Released August 2018

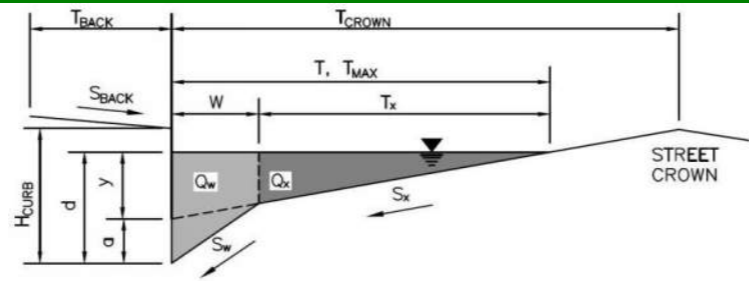


Design Information (Input)	MINOR	MAJOR	
Type of Inlet	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	1	1	
Water Depth at Flowline (outside of local depression)	6.0	6.0	inches
Grate Information			
Length of a Unit Grate	N/A	N/A	feet
Width of a Unit Grate	N/A	N/A	feet
Area Opening Ratio for a Grate (typical values 0.15-0.90)	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	N/A	N/A	
Curb Opening Information			
Length of a Unit Curb Opening	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	6.00	6.00	inches
Angle of Throat (see USDCM Figure ST-5)	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	0.67	0.67	
Low Head Performance Reduction (Calculated)			
Depth for Grate Midwidth	N/A	N/A	ft
Depth for Curb Opening Weir Equation	0.33	0.33	ft
Combination Inlet Performance Reduction Factor for Long Inlets	0.77	0.77	
Curb Opening Performance Reduction Factor for Long Inlets	1.00	1.00	
Grated Inlet Performance Reduction Factor for Long Inlets	N/A	N/A	
Total Inlet Interception Capacity (assumes clogged condition)			
Inlet Capacity IS GOOD for Minor and Major Storms(>Q PEAK)	5.4	5.4	cfs
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)

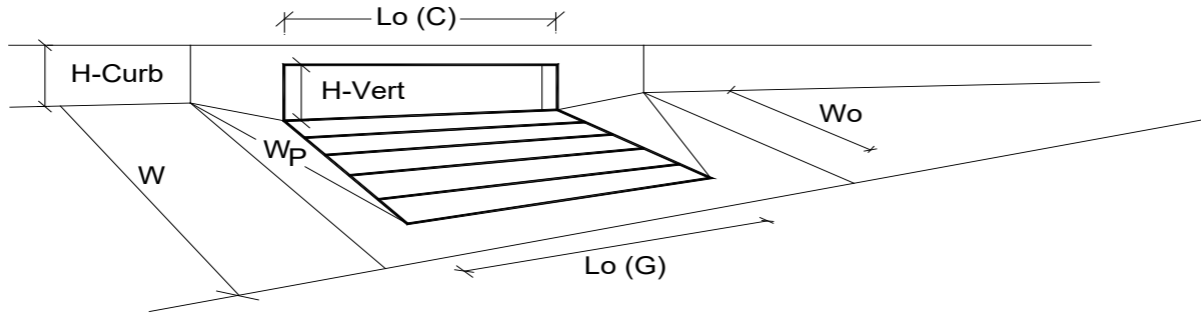
Project: New Horizon Academy, Parker, CO
 Inlet ID: ST-2



Gutter Geometry (Enter data in the blue cells)									
Maximum Allowable Width for Spread Behind Curb	$T_{BACK} = $ <input style="width: 50px;" type="text" value="0.0"/> ft								
Side Slope Behind Curb (leave blank for no conveyance credit behind curb)	$S_{BACK} = $ <input style="width: 50px;" type="text" value="0.000"/> ft/ft								
Manning's Roughness Behind Curb (typically between 0.012 and 0.020)	$n_{BACK} = $ <input style="width: 50px;" type="text" value="0.012"/>								
Height of Curb at Gutter Flow Line	$H_{CURB} = $ <input style="width: 50px;" type="text" value="6.00"/> inches								
Distance from Curb Face to Street Crown	$T_{CROWN} = $ <input style="width: 50px;" type="text" value="18.0"/> ft								
Gutter Width	$W = $ <input style="width: 50px;" type="text" value="2.00"/> ft								
Street Transverse Slope	$S_X = $ <input style="width: 50px;" type="text" value="0.025"/> ft/ft								
Gutter Cross Slope (typically 2 inches over 24 inches or 0.083 ft/ft)	$S_W = $ <input style="width: 50px;" type="text" value="0.083"/> ft/ft								
Street Longitudinal Slope - Enter 0 for sump condition	$S_O = $ <input style="width: 50px;" type="text" value="0.000"/> ft/ft								
Manning's Roughness for Street Section (typically between 0.012 and 0.020)	$n_{STREET} = $ <input style="width: 50px;" type="text" value="0.012"/>								
Max. Allowable Spread for Minor & Major Storm	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%;"></td> <td style="width: 25%; text-align: center;">Minor Storm</td> <td style="width: 25%; text-align: center;">Major Storm</td> <td style="width: 10%;"></td> </tr> <tr> <td>$T_{MAX} =$</td> <td style="border: 1px solid blue; text-align: center;"><input style="width: 40px;" type="text" value="18.0"/></td> <td style="border: 1px solid blue; text-align: center;"><input style="width: 40px;" type="text" value="18.0"/></td> <td style="text-align: right;">ft</td> </tr> </table>		Minor Storm	Major Storm		$T_{MAX} = $	<input style="width: 40px;" type="text" value="18.0"/>	<input style="width: 40px;" type="text" value="18.0"/>	ft
	Minor Storm	Major Storm							
$T_{MAX} = $	<input style="width: 40px;" type="text" value="18.0"/>	<input style="width: 40px;" type="text" value="18.0"/>	ft						
Max. Allowable Depth at Gutter Flowline for Minor & Major Storm	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%;"></td> <td style="width: 25%; text-align: center;">Minor Storm</td> <td style="width: 25%; text-align: center;">Major Storm</td> <td style="width: 10%;"></td> </tr> <tr> <td>$d_{MAX} =$</td> <td style="border: 1px solid blue; text-align: center;"><input style="width: 40px;" type="text" value="6.0"/></td> <td style="border: 1px solid blue; text-align: center;"><input style="width: 40px;" type="text" value="6.0"/></td> <td style="text-align: right;">inches</td> </tr> </table>		Minor Storm	Major Storm		$d_{MAX} = $	<input style="width: 40px;" type="text" value="6.0"/>	<input style="width: 40px;" type="text" value="6.0"/>	inches
	Minor Storm	Major Storm							
$d_{MAX} = $	<input style="width: 40px;" type="text" value="6.0"/>	<input style="width: 40px;" type="text" value="6.0"/>	inches						
Check boxes are not applicable in SUMP conditions	<input type="checkbox"/> <input type="checkbox"/>								
MINOR STORM Allowable Capacity is based on Depth Criterion									
MAJOR STORM Allowable Capacity is based on Depth Criterion									
	<table style="width: 100%; border: none;"> <tr> <td style="width: 50%;"></td> <td style="width: 25%; text-align: center;">Minor Storm</td> <td style="width: 25%; text-align: center;">Major Storm</td> <td style="width: 10%;"></td> </tr> <tr> <td>$Q_{allow} =$</td> <td style="border: 2px solid green; text-align: center;">SUMP</td> <td style="border: 2px solid green; text-align: center;">SUMP</td> <td style="text-align: right;">cfs</td> </tr> </table>		Minor Storm	Major Storm		$Q_{allow} = $	SUMP	SUMP	cfs
	Minor Storm	Major Storm							
$Q_{allow} = $	SUMP	SUMP	cfs						

INLET IN A SUMP OR SAG LOCATION

Version 4.06 Released August 2018

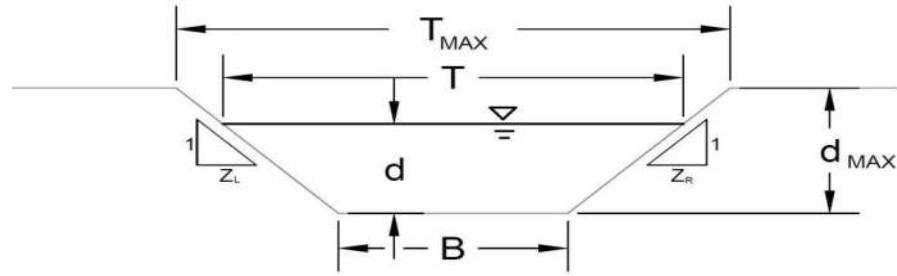


Design Information (Input)	MINOR	MAJOR	
Type of Inlet	CDOT Type R Curb Opening		
Local Depression (additional to continuous gutter depression 'a' from above)	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	1	1	
Water Depth at Flowline (outside of local depression)	6.0	6.0	inches
Grate Information			
Length of a Unit Grate	N/A	N/A	feet
Width of a Unit Grate	N/A	N/A	feet
Area Opening Ratio for a Grate (typical values 0.15-0.90)	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	N/A	N/A	
Curb Opening Information			
Length of a Unit Curb Opening	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	6.00	6.00	inches
Angle of Throat (see USDCM Figure ST-5)	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	0.67	0.67	
Low Head Performance Reduction (Calculated)			
Depth for Grate Midwidth	N/A	N/A	ft
Depth for Curb Opening Weir Equation	0.33	0.33	ft
Combination Inlet Performance Reduction Factor for Long Inlets	0.77	0.77	
Curb Opening Performance Reduction Factor for Long Inlets	1.00	1.00	
Grated Inlet Performance Reduction Factor for Long Inlets	N/A	N/A	
Total Inlet Interception Capacity (assumes clogged condition)			
Inlet Capacity IS GOOD for Minor and Major Storms(>Q PEAK)	5.4	5.4	cfs
Q _{PEAK REQUIRED}	0.8	1.9	cfs

AREA INLET IN A SWALE

New Horizon Academy, Parker, CO

EX-1



This worksheet uses the NRCS vegetative 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)

A, B, C, D or E	D
n =	see details below
S ₀ =	0.0600 ft/ft
B =	0.00 ft
Z ₁ =	0.30 ft/ft
Z ₂ =	0.30 ft/ft

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

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

	Minor Storm	Major Storm	
Q _o =	0.2	1.3	cfs
d =	1.13	1.68	feet
T =	0.68	1.01	feet
A =	0.39	0.85	square feet
P =	2.37	3.51	feet
R =	0.16	0.24	feet
n =	0.200	0.092	
V =	0.54	1.54	fps
VR =	0.09	0.37	ft ² /s
D =	0.57	0.84	feet
Fr =	0.13	0.30	

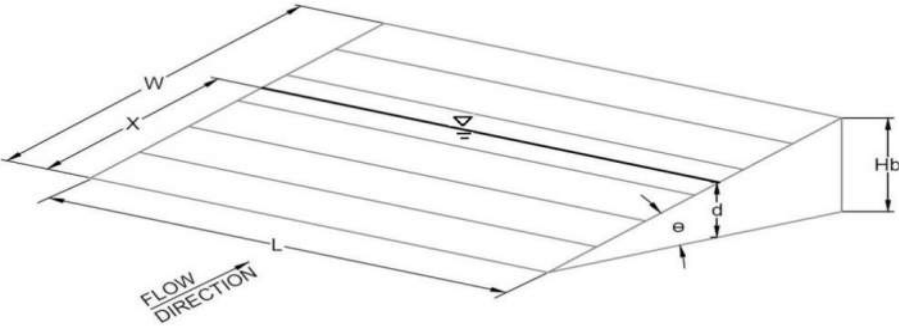
Minor storm max. allowable capacity GOOD - greater than the design flow given on sheet 'Inlet Management'

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	<div style="display: flex; justify-content: space-between;"> CDOT Type C Inlet Type = CDOT Type C </div>																											
Angle of Inclined Grate (must be <= 30 degrees)	<div style="display: flex; align-items: center;">  <table border="1" style="border-collapse: collapse;"> <tr><td style="padding: 2px;">θ =</td><td style="text-align: center; padding: 2px;">0.00</td><td style="padding: 2px;">degrees</td></tr> <tr><td style="padding: 2px;">W =</td><td style="text-align: center; padding: 2px;">3.00</td><td style="padding: 2px;">feet</td></tr> <tr><td style="padding: 2px;">L =</td><td style="text-align: center; padding: 2px;">3.00</td><td style="padding: 2px;">feet</td></tr> <tr><td style="padding: 2px;">A_{RATIO} =</td><td style="text-align: center; padding: 2px;">0.70</td><td></td></tr> <tr><td style="padding: 2px;">H_B =</td><td style="text-align: center; padding: 2px;">0.00</td><td style="padding: 2px;">feet</td></tr> <tr><td style="padding: 2px;">C_f =</td><td style="text-align: center; padding: 2px;">0.50</td><td></td></tr> <tr><td style="padding: 2px;">C_d =</td><td style="text-align: center; padding: 2px;">0.96</td><td></td></tr> <tr><td style="padding: 2px;">C_o =</td><td style="text-align: center; padding: 2px;">0.64</td><td></td></tr> <tr><td style="padding: 2px;">C_w =</td><td style="text-align: center; padding: 2px;">2.05</td><td></td></tr> </table> </div>	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	
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																											
Width of Grate																												
Length of Grate																												
Open Area Ratio																												
Height of Inclined Grate																												
Clogging Factor																												
Grate Discharge Coefficient																												
Orifice Coefficient																												
Weir Coefficient																												
Water Depth at Inlet (for depressed inlets, 1 foot is added for depression)	<table border="1" style="border-collapse: collapse; width: 100%;"> <tr> <th style="width: 50%; text-align: center;">MINOR</th> <th style="width: 50%; text-align: center;">MAJOR</th> </tr> <tr> <td style="text-align: center;">d = 1.13</td> <td style="text-align: center;">1.68</td> </tr> </table>	MINOR	MAJOR	d = 1.13	1.68																							
MINOR	MAJOR																											
d = 1.13	1.68																											
Grate Capacity as a Weir																												
Submerged Side Weir Length	X = <table border="1" style="border-collapse: collapse;"><tr><td style="text-align: center;">3.00</td><td style="text-align: center;">3.00</td><td style="padding: 0 5px;">feet</td></tr></table>	3.00	3.00	feet																								
3.00	3.00	feet																										
Inclined Side Weir Flow	Q_{ws} = <table border="1" style="border-collapse: collapse;"><tr><td style="text-align: center;">13.0</td><td style="text-align: center;">23.5</td><td style="padding: 0 5px;">cfs</td></tr></table>	13.0	23.5	cfs																								
13.0	23.5	cfs																										
Base Weir Flow	Q_{wb} = <table border="1" style="border-collapse: collapse;"><tr><td style="text-align: center;">18.6</td><td style="text-align: center;">33.6</td><td style="padding: 0 5px;">cfs</td></tr></table>	18.6	33.6	cfs																								
18.6	33.6	cfs																										
Interception without Clogging	Q_{wi} = <table border="1" style="border-collapse: collapse;"><tr><td style="text-align: center;">44.6</td><td style="text-align: center;">80.6</td><td style="padding: 0 5px;">cfs</td></tr></table>	44.6	80.6	cfs																								
44.6	80.6	cfs																										
Interception with Clogging	Q_{wa} = <table border="1" style="border-collapse: collapse;"><tr><td style="text-align: center;">22.3</td><td style="text-align: center;">40.3</td><td style="padding: 0 5px;">cfs</td></tr></table>	22.3	40.3	cfs																								
22.3	40.3	cfs																										
Grate Capacity as an Orifice																												
Interception without Clogging	Q_{oi} = <table border="1" style="border-collapse: collapse;"><tr><td style="text-align: center;">34.4</td><td style="text-align: center;">41.9</td><td style="padding: 0 5px;">cfs</td></tr></table>	34.4	41.9	cfs																								
34.4	41.9	cfs																										
Interception with Clogging	Q_{oa} = <table border="1" style="border-collapse: collapse;"><tr><td style="text-align: center;">17.2</td><td style="text-align: center;">21.0</td><td style="padding: 0 5px;">cfs</td></tr></table>	17.2	21.0	cfs																								
17.2	21.0	cfs																										
Total Inlet Interception Capacity (assumes clogged condition)																												
	Q_a = <table border="1" style="border-collapse: collapse;"><tr><td style="text-align: center;">17.2</td><td style="text-align: center;">21.0</td><td style="padding: 0 5px;">cfs</td></tr></table>	17.2	21.0	cfs																								
17.2	21.0	cfs																										
	Bypassed Flow, Q_b = <table border="1" style="border-collapse: collapse;"><tr><td style="text-align: center;">0.0</td><td style="text-align: center;">0.0</td><td style="padding: 0 5px;">cfs</td></tr></table>	0.0	0.0	cfs																								
0.0	0.0	cfs																										
	Capture Percentage = Q_a/Q_o = C% <table border="1" style="border-collapse: collapse;"><tr><td style="text-align: center;">100</td><td style="text-align: center;">100</td><td style="padding: 0 5px;">%</td></tr></table>	100	100	%																								
100	100	%																										

Warning 01: Sideslope steepness exceeds USDCM Volume I recommendation.

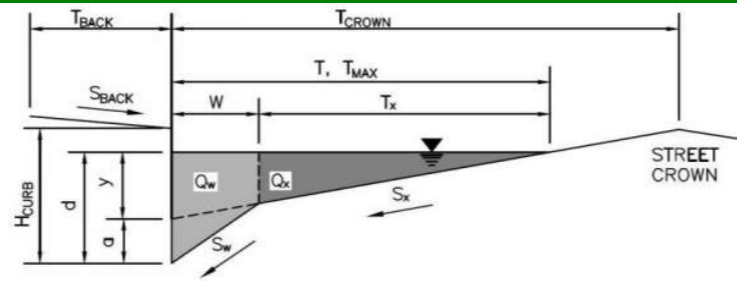
Warning 02: Depth (d) exceeds USDCM Volume I recommendation.

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-4**



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)

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

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)

$H_{CURB} = 6.00$ 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

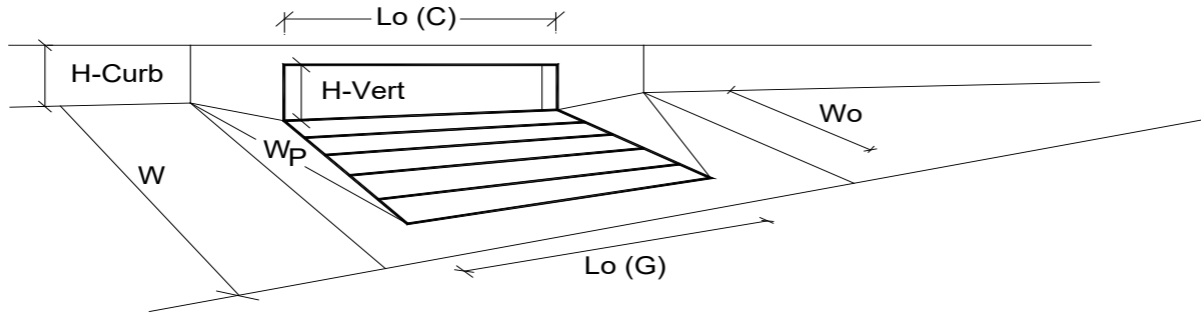
	Minor Storm	Major Storm	
$T_{MAX} =$	18.0	18.0	ft
$d_{MAX} =$	6.0	6.0	inches

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

	Minor Storm	Major Storm	
$Q_{allow} =$	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		
Local Depression (additional to continuous gutter depression 'a' from above)	3.00	3.00	inches
Number of Unit Inlets (Grate or Curb Opening)	1	1	
Water Depth at Flowline (outside of local depression)	6.0	6.0	inches
Grate Information	MINOR	MAJOR	<input type="checkbox"/> Override Depths
Length of a Unit Grate	N/A	N/A	feet
Width of a Unit Grate	N/A	N/A	feet
Area Opening Ratio for a Grate (typical values 0.15-0.90)	N/A	N/A	
Clogging Factor for a Single Grate (typical value 0.50 - 0.70)	N/A	N/A	
Grate Weir Coefficient (typical value 2.15 - 3.60)	N/A	N/A	
Grate Orifice Coefficient (typical value 0.60 - 0.80)	N/A	N/A	
Curb Opening Information	MINOR	MAJOR	
Length of a Unit Curb Opening	5.00	5.00	feet
Height of Vertical Curb Opening in Inches	6.00	6.00	inches
Height of Curb Orifice Throat in Inches	6.00	6.00	inches
Angle of Throat (see USDCM Figure ST-5)	63.40	63.40	degrees
Side Width for Depression Pan (typically the gutter width of 2 feet)	2.00	2.00	feet
Clogging Factor for a Single Curb Opening (typical value 0.10)	0.10	0.10	
Curb Opening Weir Coefficient (typical value 2.3-3.7)	3.60	3.60	
Curb Opening Orifice Coefficient (typical value 0.60 - 0.70)	0.67	0.67	
Low Head Performance Reduction (Calculated)	MINOR	MAJOR	
Depth for Grate Midwidth	N/A	N/A	ft
Depth for Curb Opening Weir Equation	0.33	0.33	ft
Combination Inlet Performance Reduction Factor for Long Inlets	0.77	0.77	
Curb Opening Performance Reduction Factor for Long Inlets	1.00	1.00	
Grated Inlet Performance Reduction Factor for Long Inlets	N/A	N/A	
Total Inlet Interception Capacity (assumes clogged condition)	MINOR	MAJOR	
Q_a	5.4	5.4	cfs
Q _{PEAK REQUIRED}	1.2	2.9	cfs

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

Design Procedure Form: Grass Swale (GS)

UD-BMP (Version 3.07, March 2018)

Sheet 1 of 1

Designer: Alex Popp
Company: SEH Inc.
Date: January 21, 2021
Project: New Horizon Academy
Location: Parker, CO

1. Design Discharge for 2-Year Return Period	$Q_2 = $ <input style="width: 50px;" type="text" value="0.04"/> cfs
2. Hydraulic Residence Time A) : Length of Grass Swale B) Calculated Residence Time (based on design velocity below)	$L_S = $ <input style="width: 50px;" type="text" value="340.0"/> ft $T_{HR} = $ <input style="width: 50px;" type="text" value="12.3"/> minutes
3. Longitudinal Slope (vertical distance per unit horizontal) A) Available Slope (based on site constraints) B) Design Slope	$S_{avail} = $ <input style="width: 50px;" type="text" value="0.020"/> ft / ft $S_D = $ <input style="width: 50px;" type="text" value="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 = $ <input style="width: 50px;" type="text" value="3.00"/> ft / ft TOO STEEP (< 4) $W_B = $ <input style="width: 50px;" type="text" value="0.00"/> ft
5. Vegetation A) Type of Planting (seed vs. sod, affects vegetal retardance factor)	Choose One <input type="text"/> <input checked="" type="radio"/> Grass From Seed <input type="radio"/> Grass From Sod
6. Design Velocity (1 ft / s maximum)	$V_2 = $ <input style="width: 50px;" type="text" value="0.46"/> 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 = $ <input style="width: 50px;" type="text" value="0.17"/> ft $A_2 = $ <input style="width: 50px;" type="text" value="0.1"/> sq ft $W_T = $ <input style="width: 50px;" type="text" value="1.0"/> ft $F = $ <input style="width: 50px;" type="text" value="0.28"/> $R_H = $ <input style="width: 50px;" type="text" value="0.08"/> $VR = $ <input style="width: 50px;" type="text" value="0.04"/> $n = $ <input style="width: 50px;" type="text" value="0.080"/> $H_D = $ <input style="width: 50px;" type="text" value="0.00"/> ft
8. Underdrain (Is an underdrain necessary?)	Choose One <input type="text"/> <input type="radio"/> YES <input checked="" type="radio"/> NO
9. Soil Preparation (Describe soil amendment)	<hr/> <hr/> <hr/>
10. Irrigation	Choose One <input type="text"/> <input type="radio"/> Temporary <input checked="" type="radio"/> Permanent

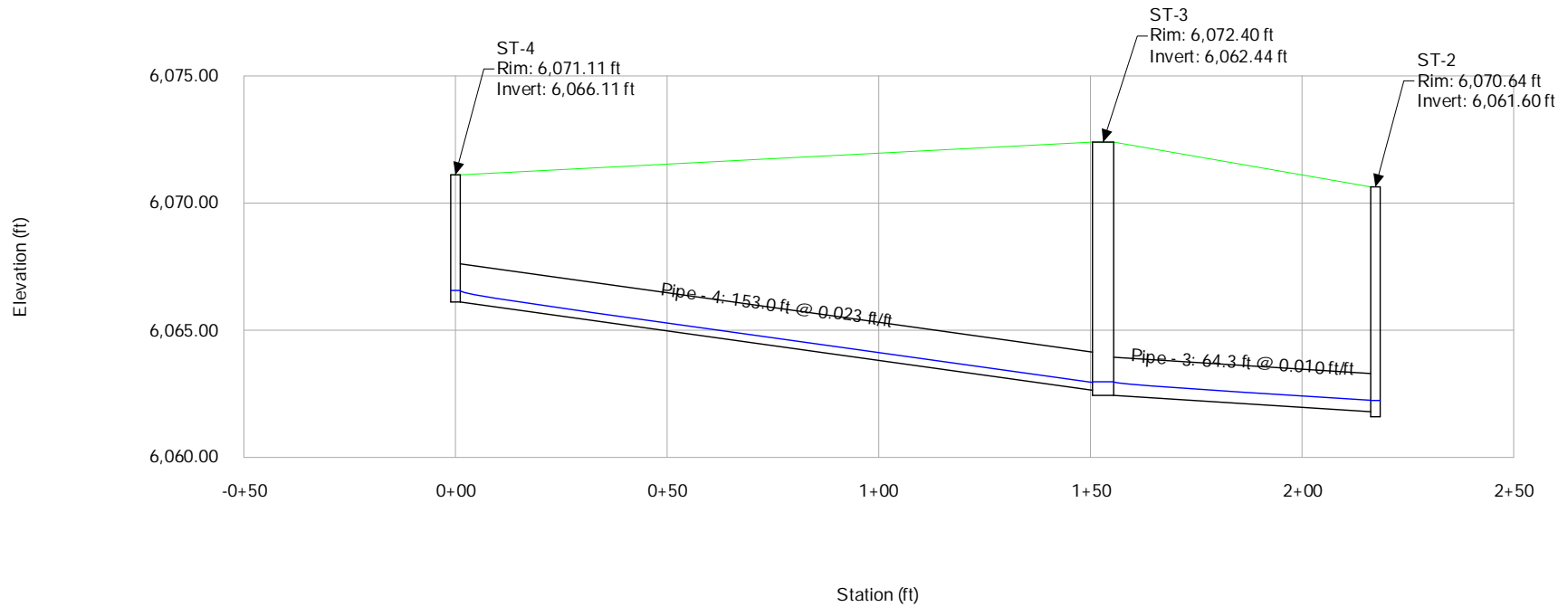
Notes: _____

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	151.0	0.023	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	191.7	0.009	Circle	18.0
68	ST-3	6,062.44	ST-2	6,061.80	64.3	0.010	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	5.85	0.33	15.82	10.7	6,066.60	6,062.97	
0.013	3.63	12.06	0.35	32.16	11.3	6,059.73	6,056.27	
0.013	2.70	5.04	0.51	10.68	25.3	6,062.22	6,061.51	
0.013	3.42	5.19	0.73	10.18	33.6	6,061.51	6,059.73	
0.013	2.25	4.72	0.47	10.48	21.5	6,063.01	6,062.27	

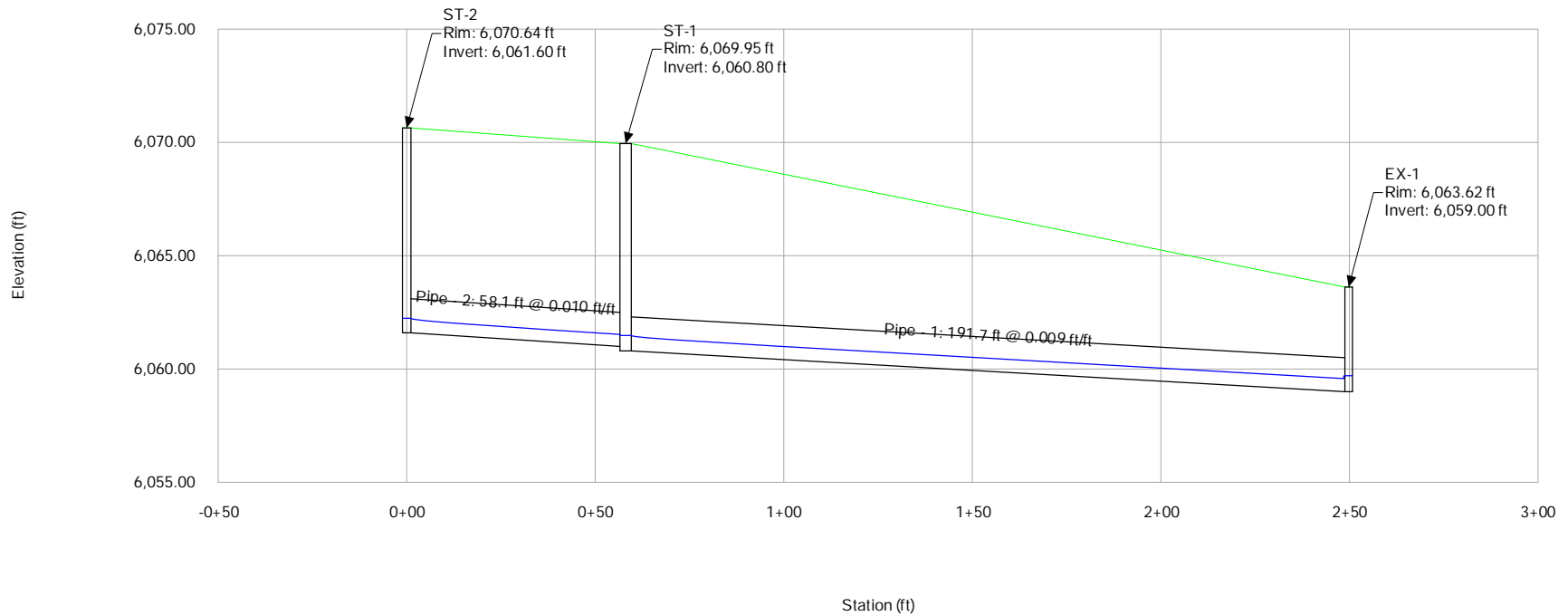
Profile Report

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



Profile Report

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

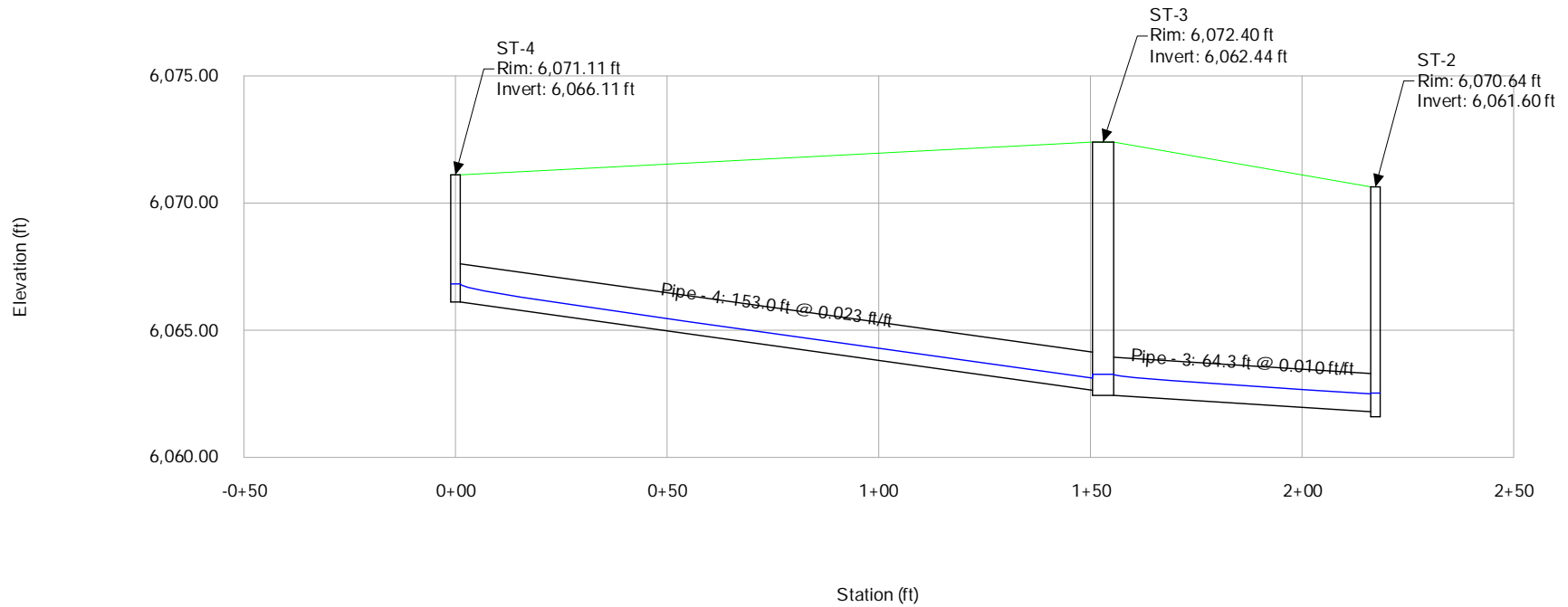


FlexTable: Conduit Table

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	151.0	0.023	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	191.7	0.009	Circle	18.0
68	ST-3	6,062.44	ST-2	6,061.80	64.3	0.010	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	7.46	0.51	15.82	25.3	6,066.88	6,063.15	
0.013	9.35	15.77	0.62	32.16	29.1	6,060.18	6,056.53	
0.013	6.99	6.44	0.89	10.68	65.5	6,062.62	6,061.89	
0.013	8.04	6.38	1.18	10.18	79.0	6,061.90	6,060.18	
0.013	5.14	5.90	0.74	10.48	49.1	6,063.31	6,062.54	

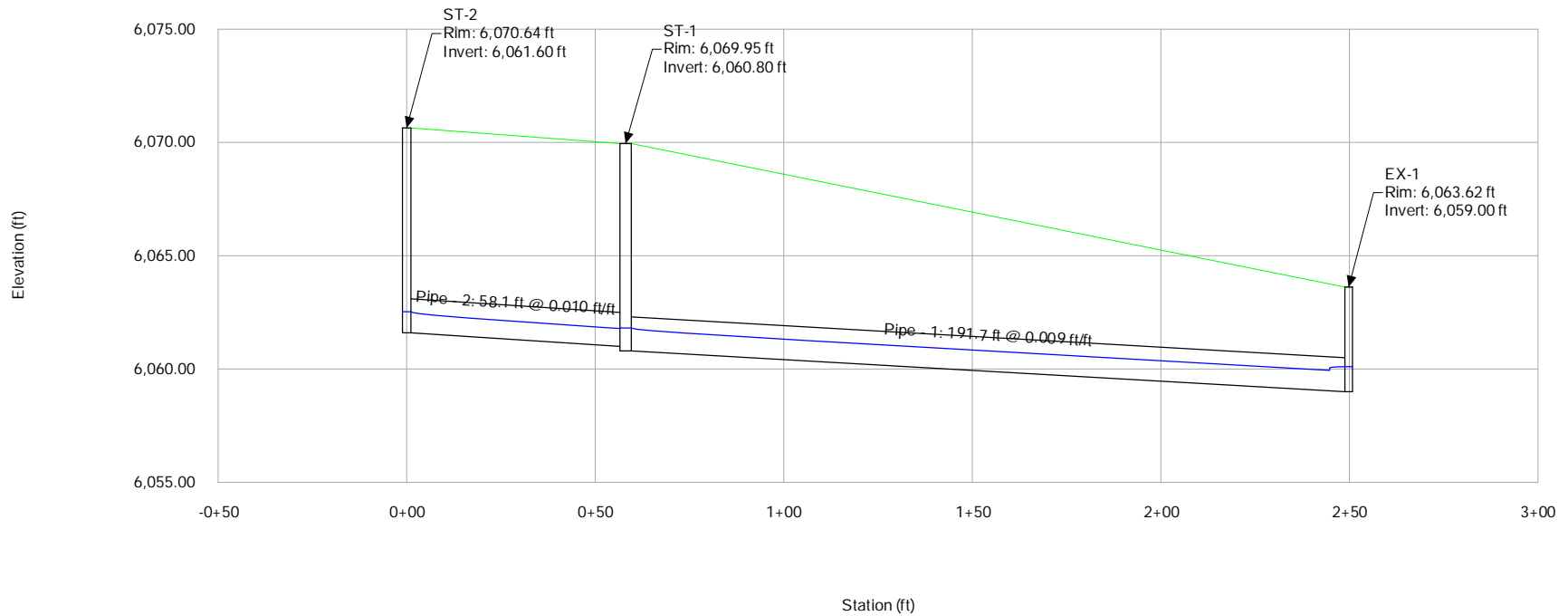
Profile Report

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



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 Parkway 234 / 01804102
 Date: 2-3-03
 Sheet 2 of 5

Telephone Log
 Meeting Record
 Calculations
 Other

<u>POND A</u>											
Area = 30.25 Ac.											
# of homes = 130 avg. sq. footage = 1660 ft ² , 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:

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

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

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

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

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

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

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

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

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

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

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

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

<p>6. Two-Stage Design - See Figure EDB-1</p> <p>A) Top Stage (Depth $D_{WQ} = 2'$ Minimum)</p> <p>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.))</p> <p>C) Micro Pool (Minimum Depth = the Larger of $0.5 \times$ Top Stage Depth (1.3') or 2.5')</p> <p>D) Total Volume: $Vol_{tot} =$ Storage from 5A + 6A + 6B (Must be $>$ Design Volume in 1D, or 0.675865344 acre-feet.)</p>	<p>$D_{WQ} =$ <u>2.60</u> feet Storage = <u>0.645</u> acre-feet</p> <p>$D_{BS} =$ <u>1.50</u> feet Storage = <u>0.031</u> acre-feet Surf. Area = <u>0.021</u> acres</p> <p>Depth = <u>2.50</u> feet Storage = <u>0.024</u> acre-feet Surf. Area = <u>0.010</u> acres</p> <p>$Vol_{tot} =$ <u>0.738</u> acre-feet</p>
<p>7. Basin Side Slopes (Z, horizontal distance per unit vertical) Minimum Z = 4, Flatter Preferred</p>	<p>Z = <u>4.00</u> (horizontal/vertical)</p>
<p>8. Dam Embankment Side Slopes (Z, horizontal distance) per unit vertical) Minimum Z = 3, Flatter Preferred</p>	<p>Z = <u>4.00</u> (horizontal/vertical)</p>
<p>9. Vegetation (Check the method or describe "Other")</p>	<p><input checked="" type="checkbox"/> Native Grass <input type="checkbox"/> Irrigated Turf Grass <input type="checkbox"/> Other: _____</p>

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

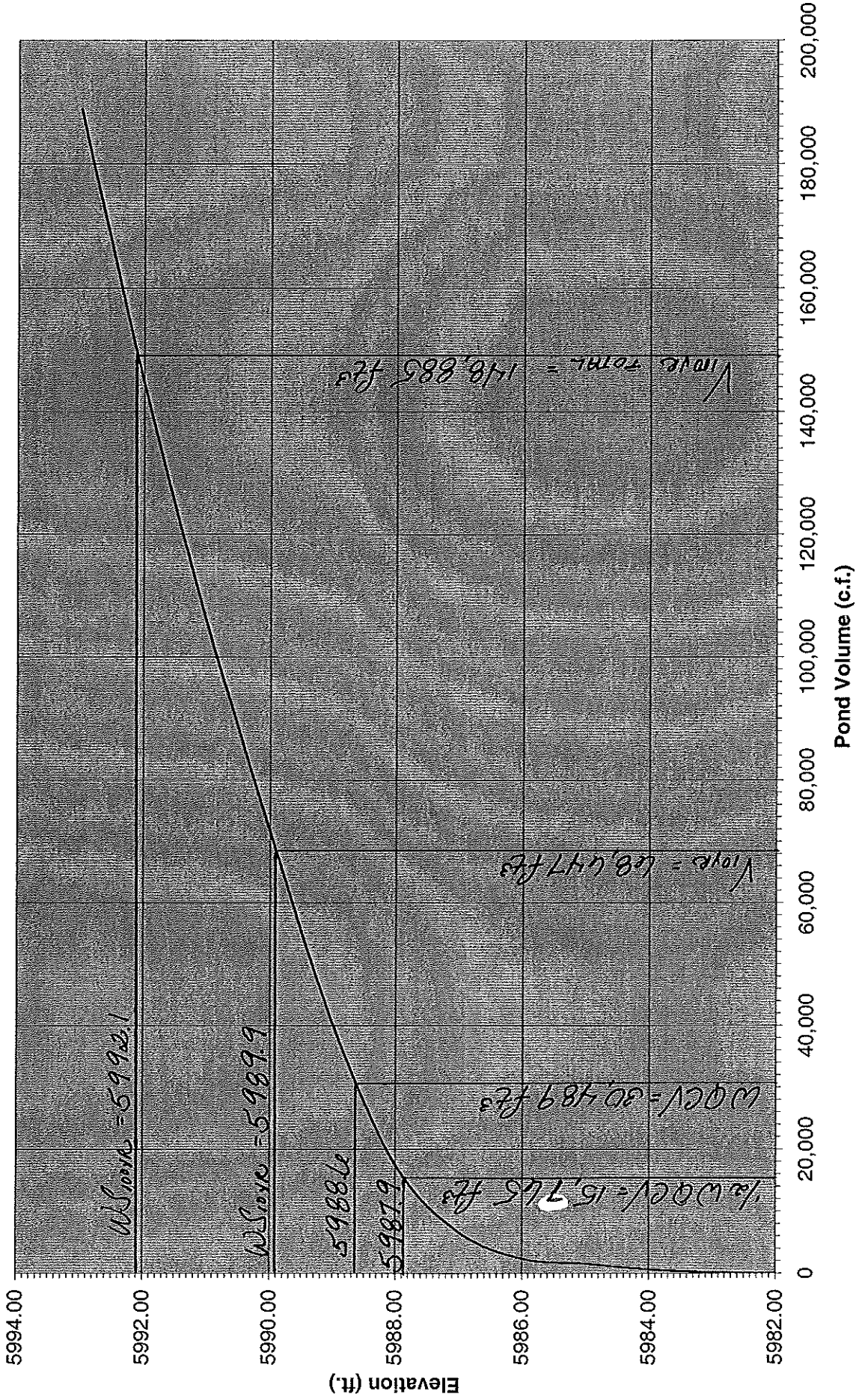
A - Upper Surface

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:

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

$C_d = 3.37$ (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*Q₁₀₀) = 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*Q₁₀₀) = 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*Q₁₀₀) = 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*Q₁₀₀) = 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:

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

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

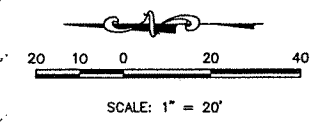
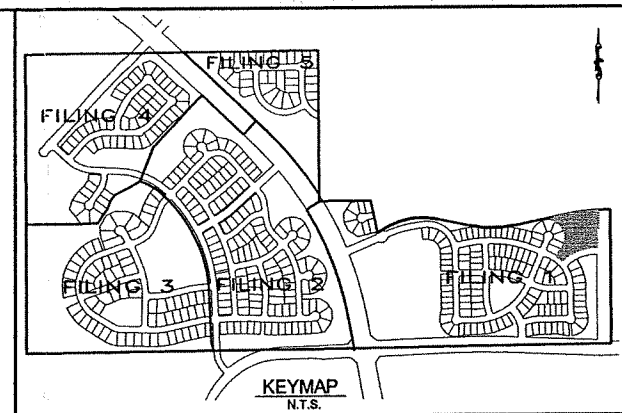
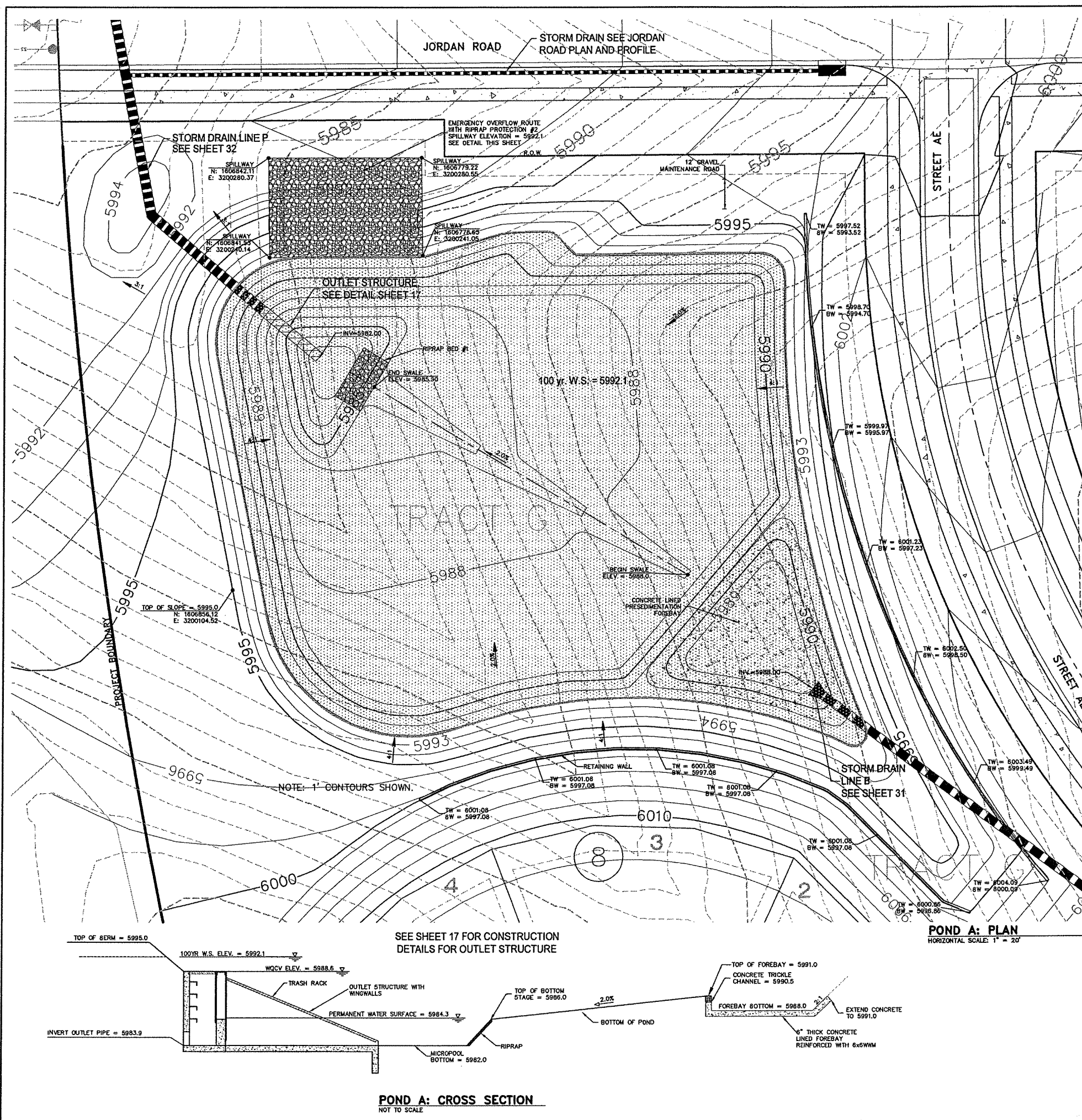
$$Q = 0.65 * 3.1415 * D^2 / 4 * (2 * 32.2 * h)^{1/2}$$

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

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%

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RIRAP SUMMARY TABLE

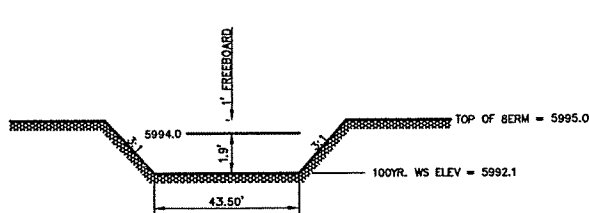
	RR#1	RR#2
LENGTH	23	61'
WIDTH	12	40'
DEPTH	2.5'	1.5'
SIZE, d50	9"	12"
TYPE	L	M

* SEE DETAIL

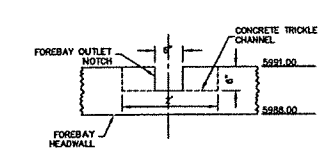
BURY TYPE L RIPRAP WITH 4" NATIVE TOPSOIL AND RESEED OR RESOD.

POND SUMMARY TABLE

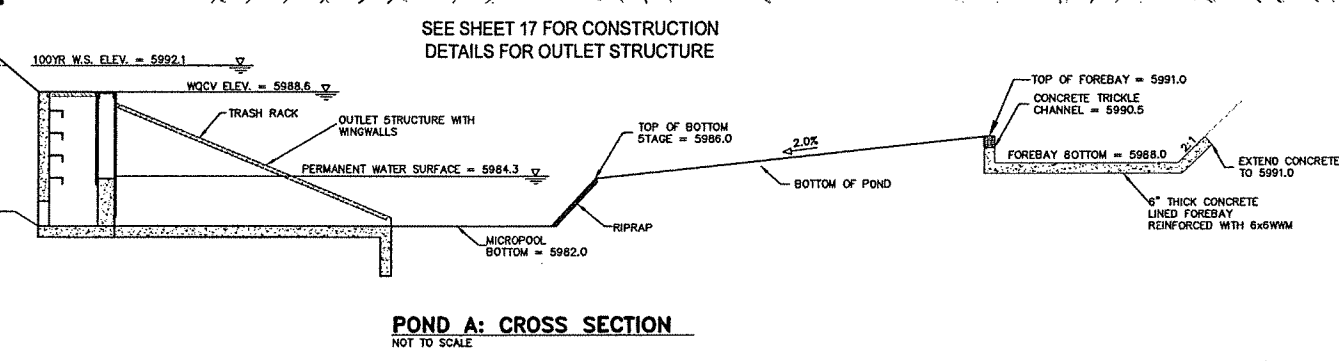
	Q 10yr.	Q 100yr.
PEAK INFLOW (cfs)	127.4	191.7
PEAK OUTFLOW (cfs)	7.0	50.9
WQCV (Ac.Ft.)		0.68
10 yr. REQUIRED VOL. (Ac.Ft.)		1.55
100 yr. REQUIRED VOL. (Ac.Ft.)		2.72
DETENTION CAPACITY (Ac.Ft.)		3.42
AVAILABLE FREEBOARD (ft.)		1.0



EMERGENCY SPILLWAY DETAIL



FOREBAY OUTLET NOTCH



Revisions	Date	Init.	Appr.	Date

7901 E. Indianway Avenue
Suite 159
Englewood, CO 80111
Tel: (720) 482-9526
Fax: (720) 482-9546

UNCC
CONSULTANTS OF COLORADO, INC.
CIVIL ENGINEERING - LAND SURVEYING - LAND PLANNING

Continental Homes
7600 East Orchard Road, Ste. 165-S
Greenwood Village, CO 80111

DOUGLAS 234
FILING 1
STREET AND DRAINAGE IMPROVEMENTS
POND A

SCALE: AS SHOWN
FILE NO: 01804102

DRAWN BY: JAM
CHECKED BY: KAL
DATE: FEBRUARY 2003

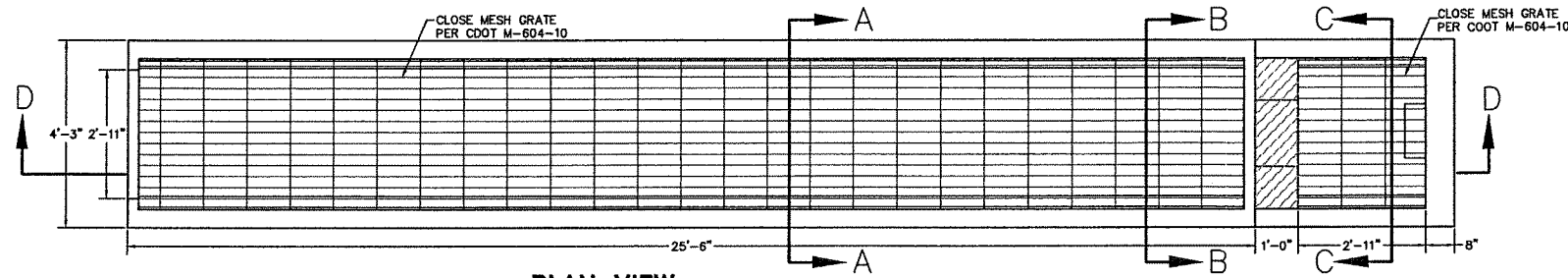
SHEET NUMBER **16**

CALL UNCC
TWO WORKING DAYS
BEFORE YOU DIG
1-800-922-1987
534-6700 METRO DENVER AREA
UTILITY NOTIFICATION CENTER OF COLORADO

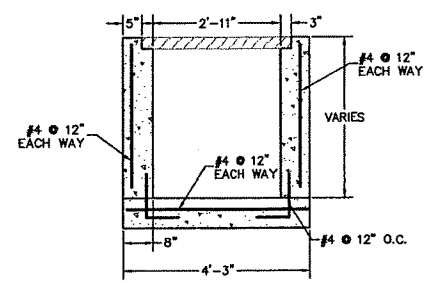
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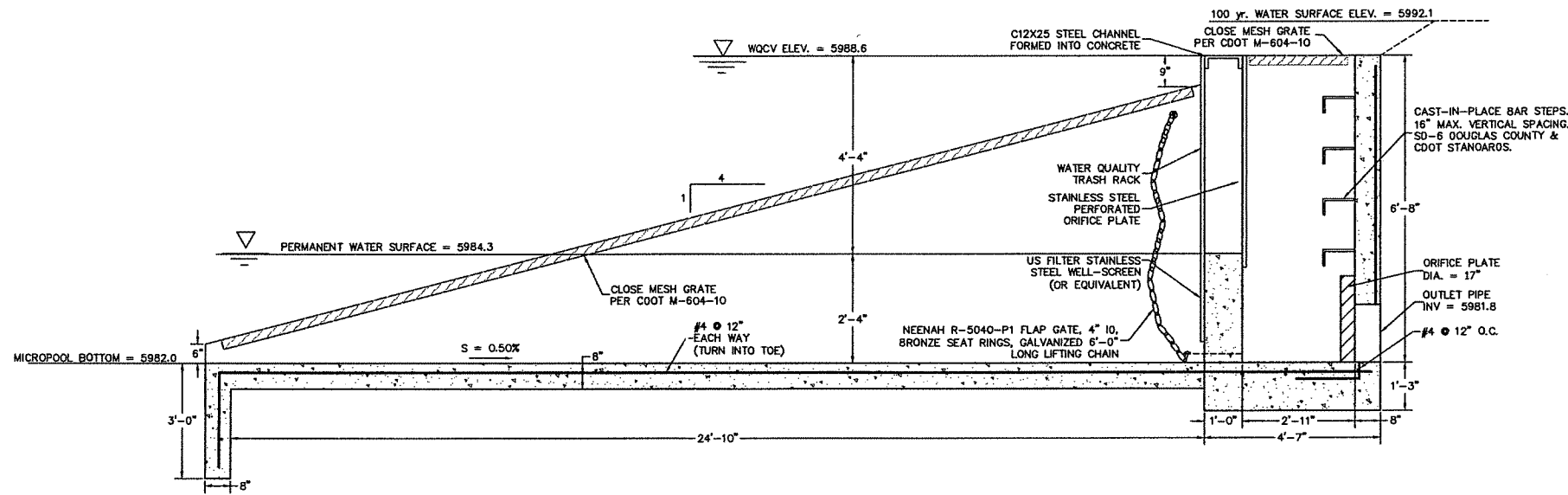
POND A DETAILS



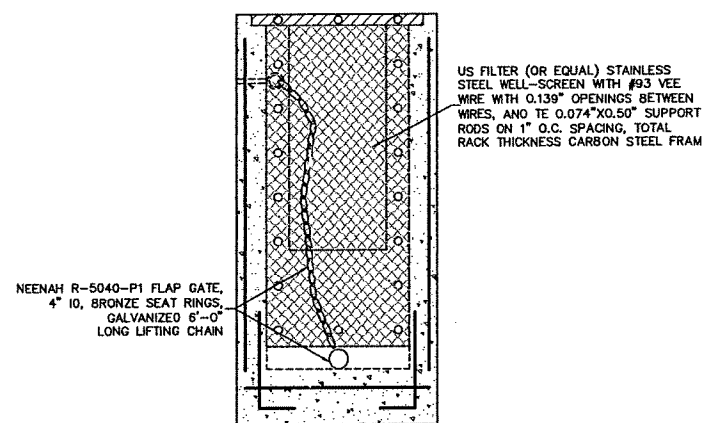
PLAN VIEW
NTS



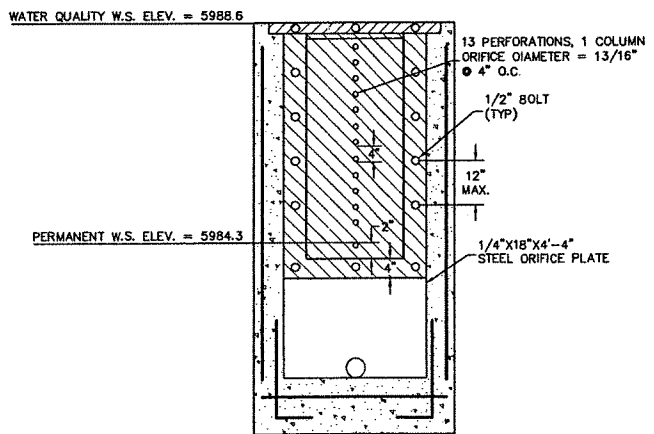
SECTION A-A
NTS



SECTION D-D
NTS



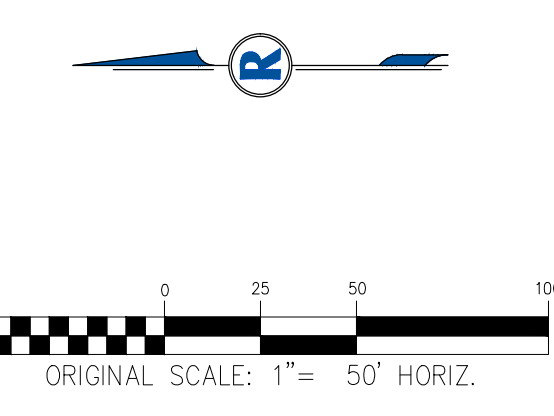
SECTION B-B
NTS



SECTION C-C
NTS

SHEET NUMBER 17	DRAWN BY: MEF	CHECKED BY: KAL	DATE: FEBRUARY 2003	SCALE: AS SHOWN	FILE NO: 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. Balcones Avenue Englewood, CO 80111 Tel: (720) 482-9236 Fax: (720) 482-9246	Revisions	Date	Appr.
				No.							Date	Appr.

DRAWING: 17-PONDA-DET

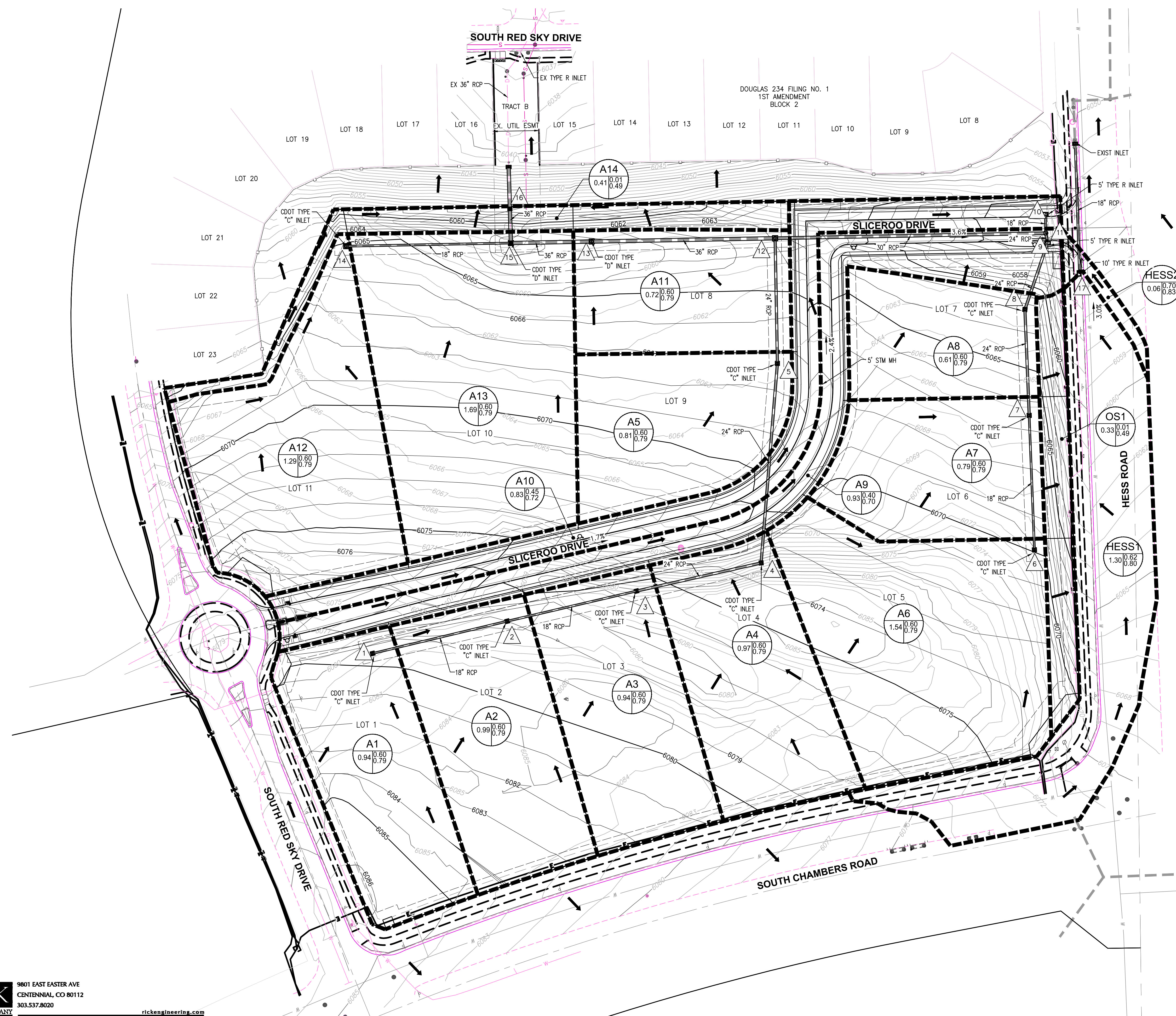


LEGEND

- XX BASIN ID
- X.XX | X.XX 2 YR. RUNOFF COEFFICIENT
- X.XX | X.XX 100 YR. RUNOFF COEFFICIENT
- X AREA IN ACRES
- X DESIGN POINT
- DRAINAGE BASIN BOUNDARY
- FLOW ARROW
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPERTY BOUNDARY
- PROPOSED LOT LINE
- PROPOSED STORM SEWER

DESIGN POINT	PEAK RUNOFF 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	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



RICK ENGINEERING COMPANY
 9801 EAST EASTER AVE
 CENTENNIAL, CO 80112
 303.537.8020
 rickengineering.com
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POST-DEVELOPMENT DRAINAGE MAP FOR CHAMBERS & HESS FILING NO. 1
 SHEET 2 OF 2
 D-1173
 DATE: MAY 5, 2020

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
									8.4	0.37	7.52	2.8									
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 8.8 cfs



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