city of golden valley
7800 Golden Valley Road
Golden Valley, MN 55427

February 13, 2019

Ms. Laura Jester
BCWMC Administrator
Keystone Waters, LLC
16145 Hillcrest Lane
Eden Prairie, MN 55346

Subject: Decola Ponds B and C Improvement Project, City Project #18-06
50% Design Plans

Dear Laura:

Enclosed please find Barr Engineering's correspondence dated February 13, 2019 along with the 50% design plans for the Decola Ponds B and C Improvement Project. These items are being submitted for consideration at the BCWMC meeting scheduled for February 21, 2019.

Please call me at 763-593-8034 if you have any questions regarding the enclosures.

Sincerely,

Jeff Oliver, P.E.
City Engineer

Enclosures

C: Eric Eckman, Development and Assets Supervisor

G:\PROJECTS\DeCola Ponds Flood Mitigation\DeCola Ponds B and C Project (18-06)\Correspondence\Submit_50%DesignPlans_BCWMC.docx

resourceful. naturally.
engineering and environmental consultants

BARR

2/13/2019

Mr. Jeff Oliver, P.E.
City Engineer
City of Golden Valley
7800 Golden Valley Road
Golden Valley, MN 55427

Re: 50% Design Plans - DeCola Ponds B & C Improvement Project Golden Valley Project 18-06

Dear Mr. Oliver:

Attached please find the 50% design plans for the DeCola Ponds B & C Improvement Project. The 2019 DeCola Pond B & C improvement project (BC-2, 3,) will be funded by several sources including the Minnesota Department of Natural Resources Flood Damage Reduction Grant, the BCWMC's ad valorem levy (via Hennepin County) for CIP projects, and funding from Hennepin County and the City of Golden Valley. Per the cooperative agreement between the City of Golden Valley and the BCWMC, the city is to construct the project, and the plans and specifications are subject to approval by the Commission. Also, per the agreement, the 50% design plans for this project must be submitted to the BCWMC for review and approval. If the attached 50% plans meet the city's approval, we recommend submitting them, along with this letter, to the BCWMC for inclusion in the meeting packet for their February 21, 2019 meeting. Barr staff will present the 50% plans to the BCWMC at the meeting and answer any questions from the BCWMC.

The remainder of this letter presents information about the feasibility study, the design features of the project, and approval/permitting needs.

Feasibility Study Summary and Selected Project

The City of Golden Valley's *DeCola Ponds B and C Improvement Project Feasibility Study* (Barr Engineering, May 2018) examined the feasibility of three different concepts for the expansion of flood mitigation volume, water quality volume, and habitat improvement in the area around DeCola Ponds B and C, including the area to the north within a permanent drainage and utility easement on the Dover Hill property and in the Pennsylvania Woods Nature Area owned by the City of Golden Valley. This project will reduce flood elevations at the low point on Medicine Lake Road and increase pollutant removal by the DeCola Ponds, which ultimately drains to Bassett Creek.

The three concepts included:

1) Concept 1 – Maximize flood storage
2) Concept 2 – Maximize tree preservation
3) Concept 3 – Hybrid alternative of Concept 1 and 2

The feasibility report recommended the implementation of Concept 3, which intended to balance development of flood mitigation volume with tree preservation. The feasibility report estimated that project implementation (Concept 3) would reduce the 100-year flooding at the low point on Medicine Lake Road so that is passable by emergency vehicles and on DeCola Ponds A, B, C, and D by 0.5 foot. The project would remove accumulated sediment in DeCola Pond B and further reduce the annual total phosphorus load to Bassett Creek by 9.0 pounds per year. Additionally, the concept would restore 2.7 acres of wetland and upland habitat in the Pennsylvania Woods Nature Area.

At their May 2018 meeting, the Commission approved the final feasibility study for this project, supporting implementation of Concept 3, and the Commission ordered the project at their August 2018 meeting. Design began in early October 2018, after the MnDNR flood mitigation grant was fully executed with the City of Golden Valley.

Design features – 50% plans

The project design is underway. An environmental assessment worksheet (EAW) process was conducted using 30% design for Concept 3 from the feasibility study. The EAW public comment period was from December 17, 2018-January 16, 2019. Minor comments were received from the Minnesota Pollution Control Agency, the Minnesota Department of Natural Resources, Metropolitan Council, the State Historic Preservation Office, and the Minnesota Department of Transportation.

The EAW comments have been considered and incorporated into the 50% design plans for Concept 3 from the feasibility study. The 50% design has preserved all of the components identified as part of Concept 3, which are being refined as part of the final design process. The 50% design plans are also being used to start the environmental permitting process (discussed in the following section).

The table below compares the flood mitigation volume developed, the increase in total phosphorus removal, additional open water area, and restored wetland and upland areas by the project, as presented in the feasibility study and the 50% design plans.

	Flood Mitigation Volume Developed	Additional Total Phosphorus Removal	Additional Open Water Area	Restored Wetland and Upland Area[1]
Feasibility Study (May 2018)	22.0 acre-ft	9.0 lb/yr	1.9 acres	2.7 acres
50% Design Plans	24.0 acre-ft	8.5 lb/yr	2.0 acres	3.0 acres

1 – The restored wetland and upland area as reported in the feasibility study (2.7 acres) included proposed bituminous trail through the restored area (~0.35 ac). The total restored wetland and upland area, not including the bituminous trail, for Concept 3 in the feasibility study was 2.35 acres. The restored wetland and upland area in the 50% design, including the proposed bituminous trail through the restored area (~0.3 ac) is 3.0 acres. The total restored wetland and upland area, not including the bituminous trail area, for the 50% design is 2.7 acres.

Similar to the feasibility study, the main components of the 50% design include:

1. Lowering the normal water level (NWL) of DeCola Ponds A, B, and C from 893.8 ft MSL to 893.5 ft MSL to provide additional flood mitigation volume without needing to excavate that volume. This, in addition to the proposed excavation, will develop approximately 24 acre-ft of flood mitigation volume below the existing 100-year flood elevation. This effort includes modifying the DeCola Pond C outlet structure and overflow to lower the NWL while increasing the overflow elevation of the berm on the south end of DeCola Pond C (to increase the flood storage in DeCola Ponds A, B, and C). The modified outlet will also prevent the accumulation of debris on the inlet pipe which is currently a major maintenance issue for the City.
2. Installing a 14' x 4' box culvert that will connect the Liberty Crossing flood storage features to the expanded storage in the Dover Hills and DeCola Ponds B and C areas.
3. Developing a sediment forebay in the permanent easement on the Dover Hills area to develop water quality treatment volume, improve ease of maintenance, enhance water quality in downstream locations, and to allow lowering the normal water level of DeCola Ponds A, B, and C to increase flood storage capacity, while preserving or increasing the water quality treatment provided by the DeCola Ponds system. The current grading plan, including maintenance access and inclusion of a bituminous trail around the forebay, results in a slightly smaller water quality treatment volume that reduced the estimated additional total phosphorus removal from 9.0 lbs/yr to 8.5 lbs/yr.
4. Increasing the DeCola Ponds B and C open water area, and increasing associated water quality treatment volume through expanding contours below the NWL and dredging accumulated sediment in DeCola Pond B. The proposed expansion does not change the overall depth of the existing ponds, but will provide additional water quality treatment volume and provide additional aquatic habitat for fish, macroinvertebrates, and macrophytes.
5. In addition to increasing the open water areas, expanding the flood and water quality storage around DeCola Ponds B and C allows for the opportunity to create and restore other wetland habitat. For design, we assumed that floodplain/wetland habitat would be established below elevation 899.0 (equivalent to about the 10-year flood elevation), and restored upland habitat would be created in all disturbed areas above this elevation. This upland area will serve as a buffer to the wetlands. Based on the City of Golden Valley's wetland management classification for these ponds (Manage 2/3) the average buffer should be at least 25 feet. However, the project is not proposing new development that will increase imperviousness on the site with the exception of the replacing/realignment of the bituminous trails in the project area. Per the BCWMC requirements, trails and sidewalks are exempt from BCWMC water quality performance standards, but buffers should be provide for trails and sidewalks where possible.
6. Preserving trees on the large knolls between DeCola Ponds A, B, and C, and preserving screening trees along the west, east, and south side of DeCola Pond B and along north and east side of DeCola Pond C. Tree removal is expected within project disturbance limits. However, areas will be restored with native vegetation and some area will be replanted with trees at a density

potentially ranging from savanna (~35 trees/acre) to forest (~110 trees/acre) – the details of the proposed restoration will be determined between 50% and 90% design.

7. Replacing disturbed trails with ADA-compliant trails to preserve park use and improve walking trail opportunities.

The drawings are at a 50% design stage, which means there are a number of details yet to be worked out before the design is final and ready for bid. Any comments received from the BCWMC will be addressed in the 90% design drawings.

Approvals/permit requirements

In addition to BCWMC approval of the plans, other permits/approvals will be required for this project. Other permitting and reviews include the following:

- U.S. Army Corps of Engineers Clean Water Act Section 404 Permit
- MnDNR Public Waters Work Permit
- MnDNR Appropriations Permit for construction dewatering
- MPCA 401 Water Quality Certification
- MPCA Construction Stormwater General Permit
- Compliance with the MPCA's guidance for managing dredged material, including the Notification to Dredge form
- Compliance with the MPCA's guidance for managing contaminated material and debris-containing fill
- Compliance with the Minnesota Wetland Conservation Act (WCA)
- City of Golden Valley Right-of-Way Permit
- City of Golden Valley Stormwater Permit

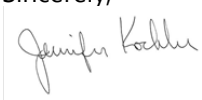
We anticipate that dewatering will need to start at the beginning of September 2019 to address MnDNR concerns about turtle hibernation and survivability before excavation can begin. We also anticipate that the permitting process could take 6 months. As a result, we will submit the USACOE and MnDNR permit applications mid-February to begin the permitting review process.

Recommendations

We recommend that the city request 1) BCWMC approval of the 50% drawings, and 2) BCWMC authorization for the city to proceed with final plans and contract documents.

If you have any questions, please contact me at 952-832-2750 or jkoehler@barr.com.

Sincerely,



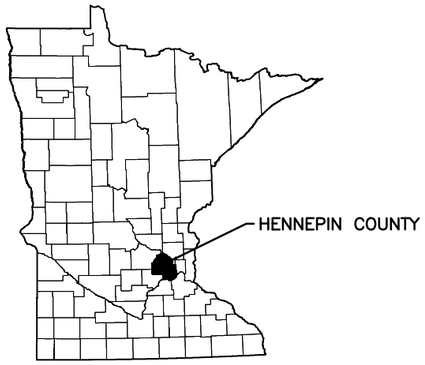
Jennifer Koehler, P.E.
Senior Water Resources Engineer

DECOLA PONDS B AND C IMPROVEMENT PROJECT

CITY OF GOLDEN VALLEY

GOLDEN VALLEY, MN

CITY PROJECT #18-06



MINNESOTA COUNTY MAP

PROJECT LOCATION MAP

INDEX OF SHEETS

DECOLA PONDS B & C IMPROVEMENT PROJECT:

JENNIFER KOEHLER, PE
BARR ENGINEERING CO.
PHONE: 952-832-2750
FAX: 952-832-2601
EMAIL: JAK2@BARR.COM

JEFF OLIVER, PE
CITY OF GOLDEN VALLEY
PHONE: 763-593-8043
EMAIL: JOLIVER@GOLDENVALLEYMN.GOV

KURT LEUTHOLD, PE
BARR ENGINEERING CO.
PHONE: 952-832-2859
FAX: 952-832-2601
EMAIL: KAL@BARR.COM

ERIC ECKMAN
CITY OF GOLDEN VALLEY
PHONE: 763-593-8084
EMAIL: EECKMAN@GOLDENVALLEYMN.GOV

COORDINATE SYSTEM: HENNEPIN COUNTY
HORIZONTAL DATUM: NAD83 (2011)
VERTICAL DATUM: NGVD88

GOPHER STATE ONE CALL

GOPHER STATE ONE CALL:
CALL BEFORE YOU DIG.
1-800-252-1166

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER LAWS OF THE STATE OF MINNESOTA.

JEFF OLIVER, PE, CITY ENGINEER

DATE _____ REG. NO.23110

50% DESIGN DRAFT

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PRINTED NAME KURT A. LEUTHOLD

SIGNATURE _____

DATE _____ LICENSE # _____

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BARR
Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277

city of golden valley

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Designed	JAK2
Approved	KAL

CITY OF GOLDEN VALLEY
GOLDEN VALLEY, MN

DECOLA PONDS B&C
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TITLE SHEET AND
SITE LOCATION MAP

BARR PROJECT No.	23/27-1677.00
CLIENT PROJECT No.	#18-06
DWG. No.	G-01
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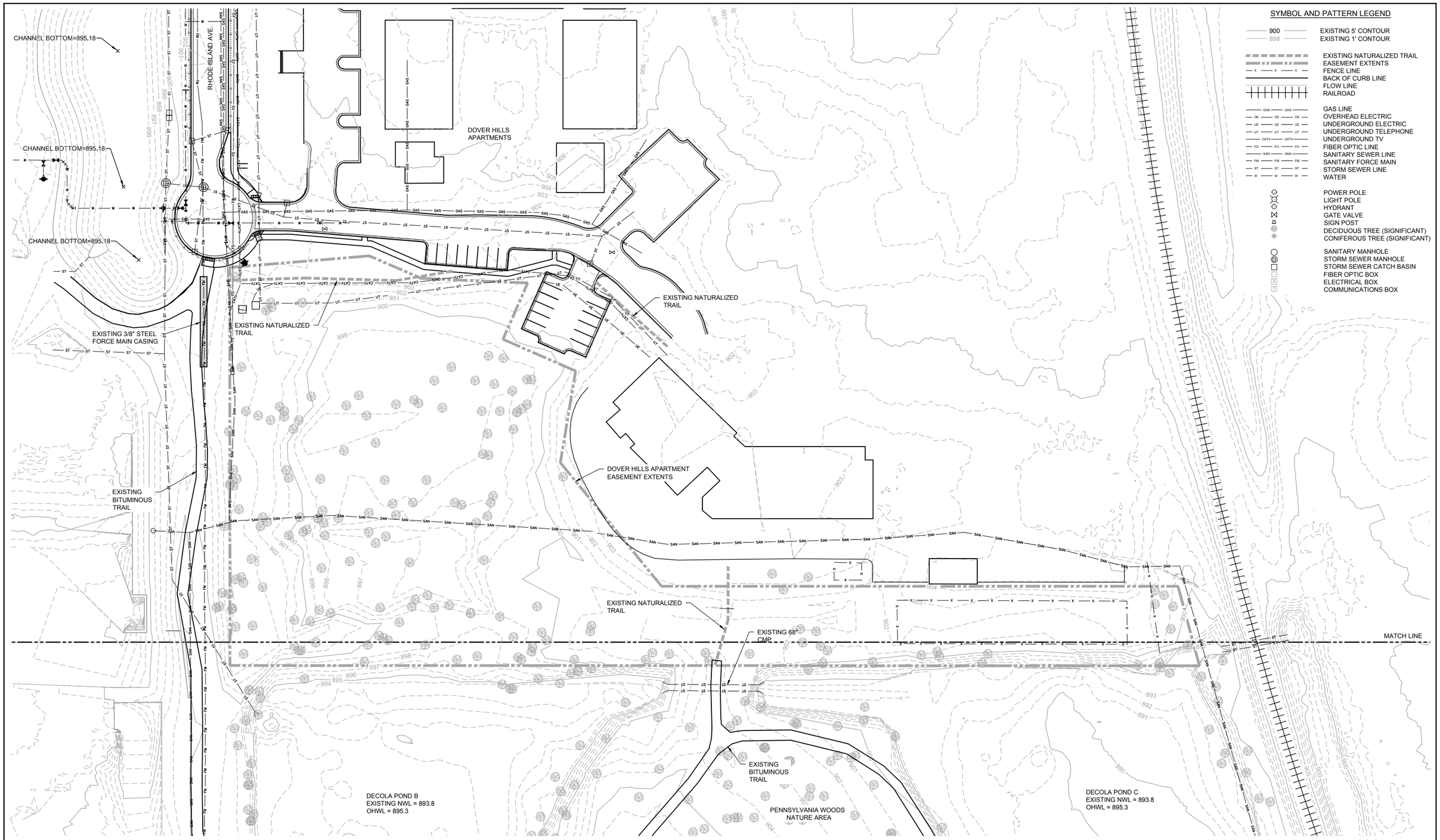

1 PLAN: EXISTING CONDITIONS - DOVER HILLS APARTMENTS' EASEMENT AREA
1"=40'-0"

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Ph: 1-800-632-2277

city of golden valley

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GOLDEN VALLEY, MN

DECOLA PONDS B&C
IMPROVEMENT PROJECT

EXISTING CONDITIONS
DOVER HILLS APARTMENT EASEMENT AREA

BARR PROJECT No.	23/27-1677.00
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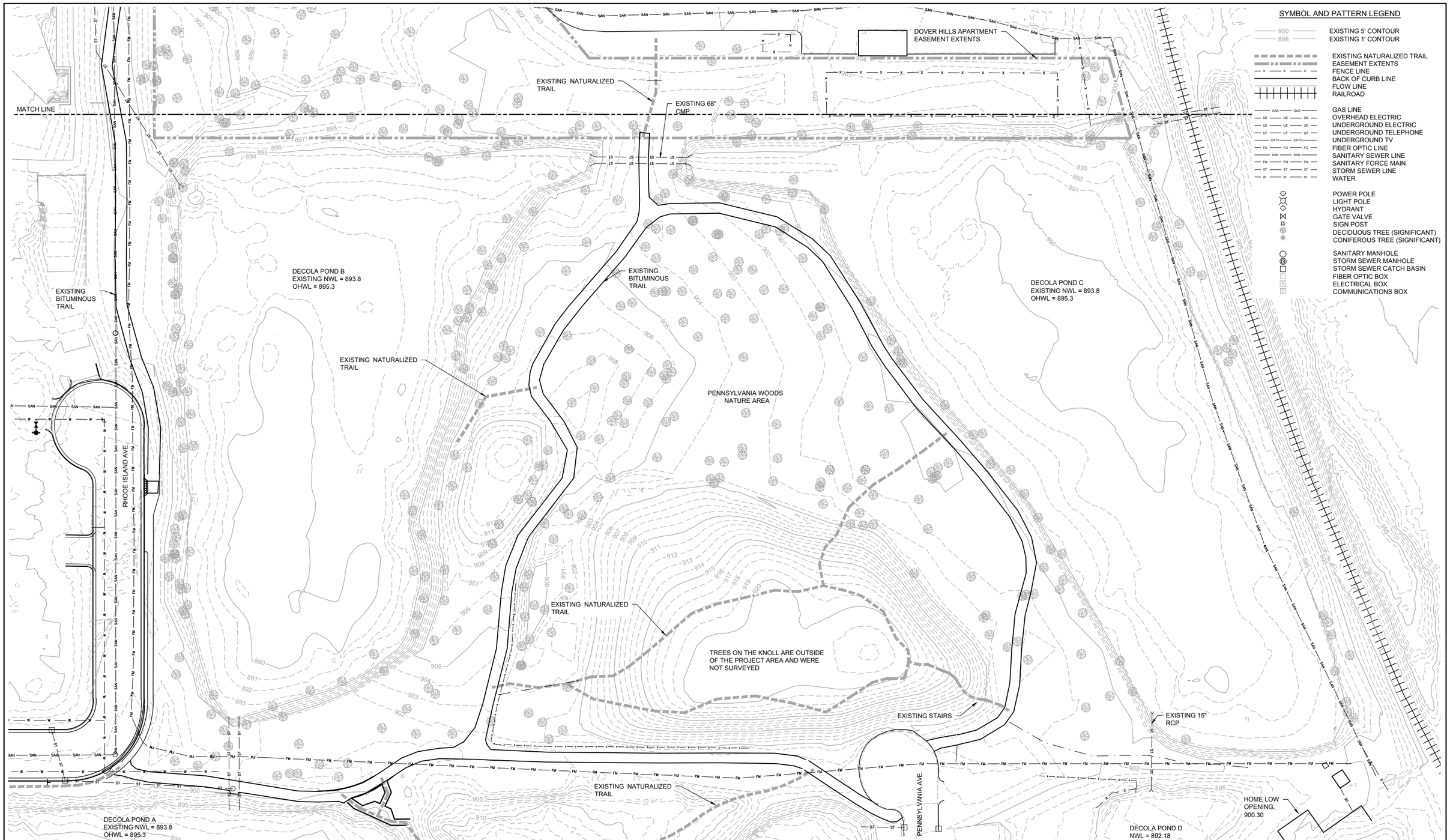

1 - PLAN: EXISTING CONDITIONS - DECOLA PONDS B AND C
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PRINTED NAME _____

SIGNATURE _____

DATE _____ LICENSE # _____

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Corporate Headquarters:
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Ph: 1-800-632-2277

city of golden valley

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Checked	JAK2
Designed	JAK2
Approved	KAL

CITY OF GOLDEN VALLEY
GOLDEN VALLEY, MN

DECOLA PONDS B&C
IMPROVEMENT PROJECT

EXISTING CONDITIONS
DECOLA PONDS B & C

BARR PROJECT No.	23/27-1677.00
CLIENT PROJECT No.	#18-06
DWG. No.	C-02
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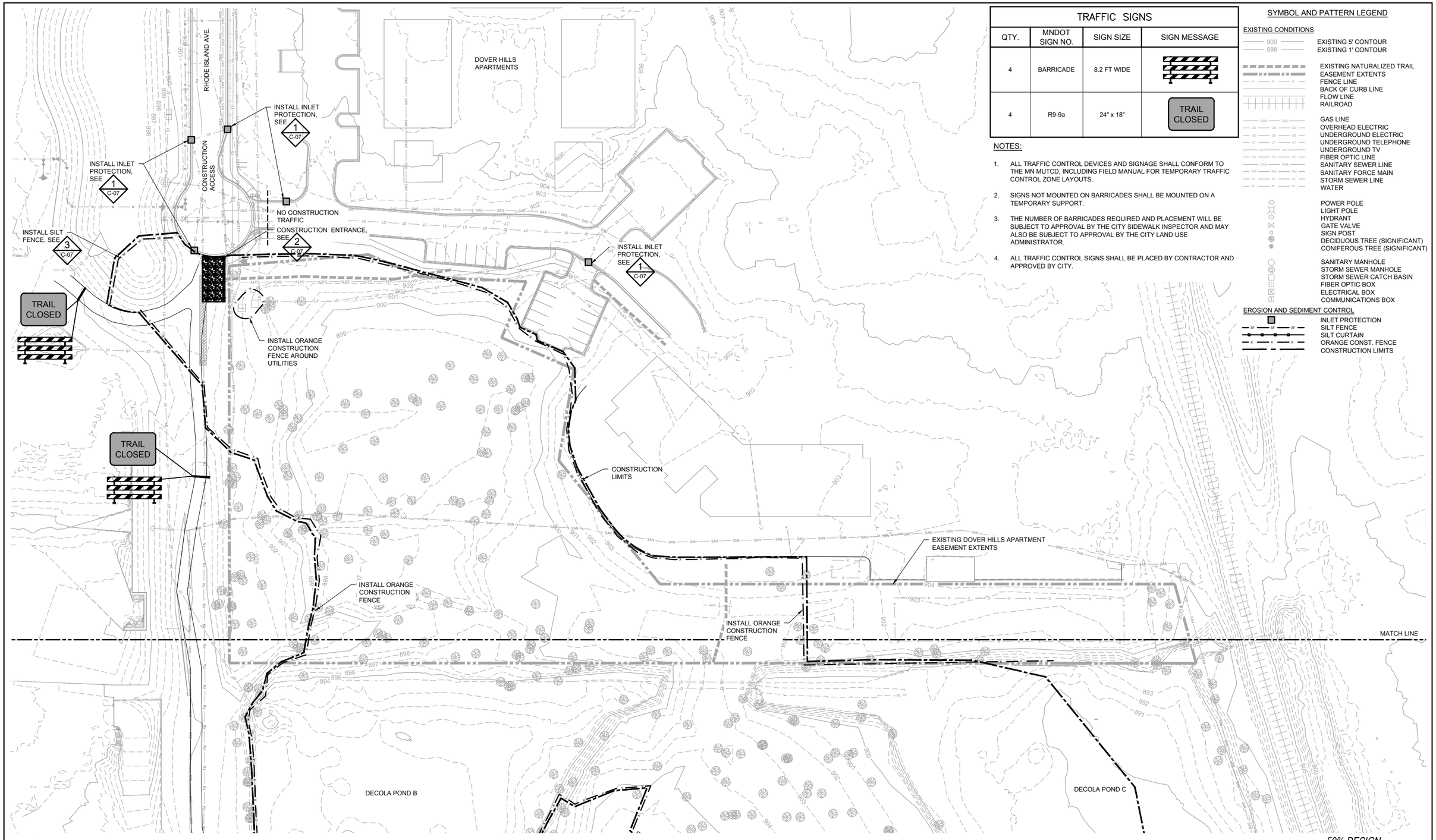

1 PLAN: EROSION AND SEDIMENT CONTROL - DOVER HILLS APARTMENTS' EASEMENT AREA
1"=40'-0"

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TRAFFIC SIGNS			
QTY.	MNDOT SIGN NO.	SIGN SIZE	SIGN MESSAGE
4	BARRICADE	8.2 FT WIDE	
4	R9-9a	24" x 18"	TRAIL CLOSED

NOTES:

1. ALL TRAFFIC CONTROL DEVICES AND SIGNAGE SHALL CONFORM TO THE MN MUTCD, INCLUDING FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.
2. SIGNS NOT MOUNTED ON BARRICADES SHALL BE MOUNTED ON A TEMPORARY SUPPORT.
3. THE NUMBER OF BARRICADES REQUIRED AND PLACEMENT WILL BE SUBJECT TO APPROVAL BY THE CITY SIDEWALK INSPECTOR AND MAY ALSO BE SUBJECT TO APPROVAL BY THE CITY LAND USE ADMINISTRATOR.
4. ALL TRAFFIC CONTROL SIGNS SHALL BE PLACED BY CONTRACTOR AND APPROVED BY CITY.

SYMBOL AND PATTERN LEGEND

EXISTING CONDITIONS

- EXISTING 5' CONTOUR
- EXISTING 1' CONTOUR
- EXISTING NATURALIZED TRAIL
- EASEMENT EXTENTS
- FENCE LINE
- BACK OF CURB LINE
- FLOW LINE
- RAILROAD
- GAS LINE
- OVERHEAD ELECTRIC
- UNDERGROUND ELECTRIC
- UNDERGROUND TELEPHONE
- UNDERGROUND TV
- FIBER OPTIC LINE
- SANITARY SEWER LINE
- SANITARY FORCE MAIN
- STORM SEWER LINE
- WATER
- POWER POLE
- LIGHT POLE
- HYDRANT
- GATE VALVE
- SIGN POST
- DECIDUOUS TREE (SIGNIFICANT)
- CONIFEROUS TREE (SIGNIFICANT)
- SANITARY MANHOLE
- STORM SEWER MANHOLE
- STORM SEWER CATCH BASIN
- FIBER OPTIC BOX
- ELECTRICAL BOX
- COMMUNICATIONS BOX

EROSION AND SEDIMENT CONTROL

- INLET PROTECTION
- SILT FENCE
- SILT CURTAIN
- ORANGE CONST. FENCE
- CONSTRUCTION LIMITS

50% DESIGN DRAFT

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Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277

city of golden valley

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Designed	JAK2
Approved	KAL

CITY OF GOLDEN VALLEY
GOLDEN VALLEY, MN

DECOLA PONDS B&C
IMPROVEMENT PROJECT

EROSION, SEDIMENT, AND TRAFFIC CONTROL
DOVER HILLS APARTMENT EASEMENT AREA

BARR PROJECT No.	
23/27-1677.00	
CLIENT PROJECT No.	
#18-06	
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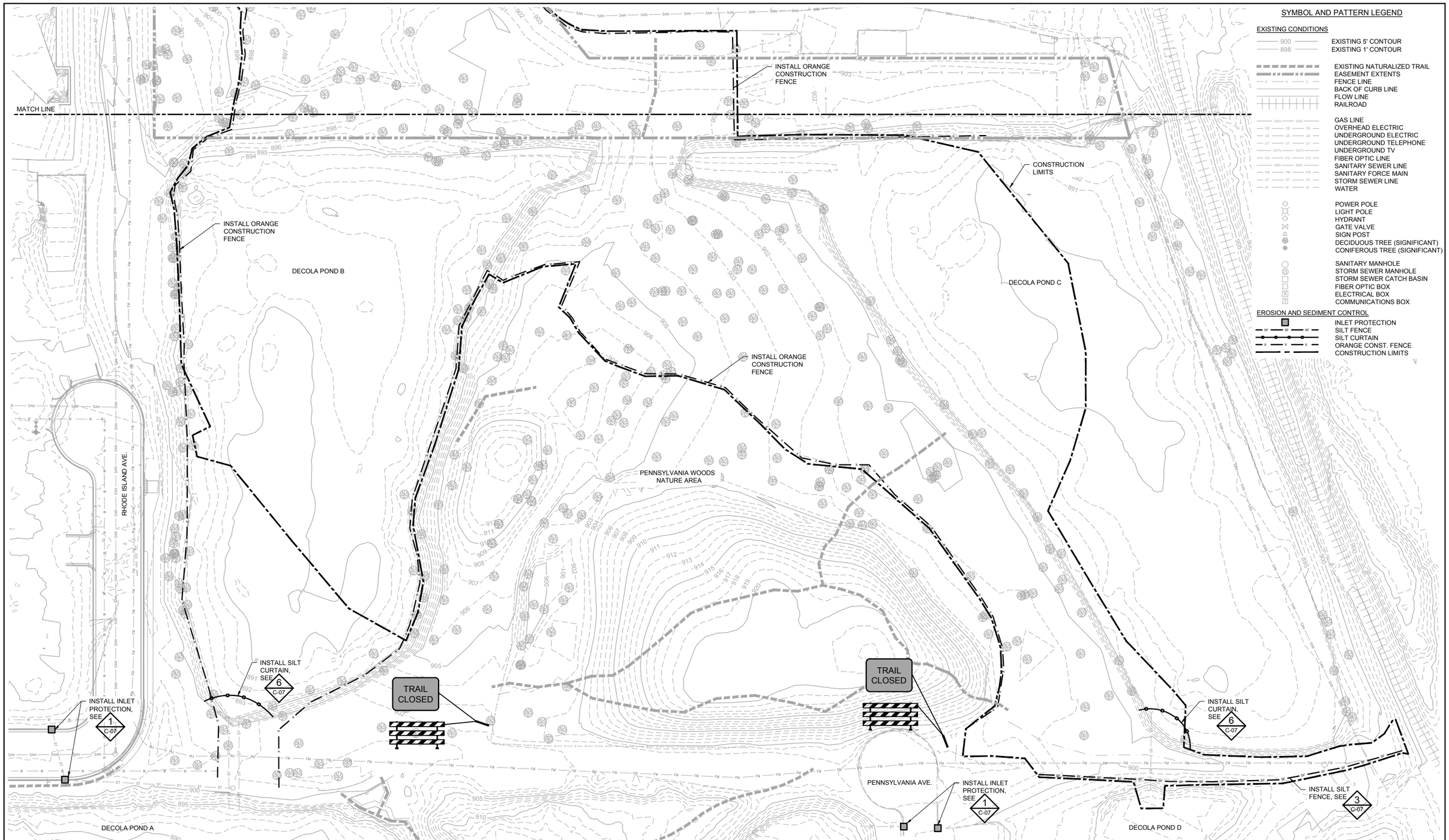

1 PLAN: EROSION AND SEDIMENT CONTROL - DECOLA PONDS B AND C
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Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277

city of golden valley

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Approved	KAL

CITY OF GOLDEN VALLEY
GOLDEN VALLEY, MN

DECOLA PONDS B&C
IMPROVEMENT PROJECT

EROSION, SEDIMENT, AND TRAFFIC CONTROL
DECOLA PONDS B & C

BARR PROJECT No.	23/27-1677.00
CLIENT PROJECT No.	#18-06
DWG. No.	C-04
REV. No.	A

1.0 GENERAL CONSTRUCTION ACTIVITY INFORMATION:

This Stormwater Pollution Prevention Plan (SWPPP) has been prepared in compliance with the Minnesota General Stormwater Permit for Construction Activity No. MNR100001 (General Permit), as required by the Minnesota Pollution Control Agency (MPCA) under the National Pollutant Discharge Elimination System/State Disposal System (NPDES/SDS) Program.

The project is located in the city of Golden Valley, Hennepin County, Minnesota. Proposed construction activities will take place within the Dover Hills Apartment Easement Area and Pennsylvania Woods Nature Reserve surrounding DeCola Ponds A, B, C, and D. The approximate centroid of the project has a latitude of 45.005 and a longitude of -93.376.

This project involves dewatering of DeCola Ponds B and C, sediment dredging in DeCola Ponds C and D, excavation and removals within the Dover Hills Apartment easement and Pennsylvania Woods Nature Reserve areas to develop flood storage volume, installation and removals of storm sewer and box culverts, modification to the DeCola C overflow berm, and upland and wetland restoration. The project, as proposed, has a total disturbance area of 9.1 acres. Erosion prevention and sediment control measures are required to minimize sediment from being transported into downstream DeCola Pond D and upstream DeCola Pond A, which are DNR identified water bodies. Refer to project drawings for further details. (CSW Permit Part III.A.1)

1.1 Project Size and Cumulative Impervious Surface:

- The anticipated area of disturbance is approximately 9.1 acres.
- The total area of pre-construction impervious area is approximately 0.42 acres.
- The total area of post-construction impervious area is approximately 0.52 acres.
- The total new impervious area is approximately 0.10 acres.

1.2 Dates of Construction:

- Anticipated start date: 09/02/2019 (Start of Dewatering)
- Anticipated end date: SUMMER 2020

1.3 Contact Information:

Owner: The City of Golden Valley
Mailing Address: 7800 Golden Valley Road, Golden Valley, MN 55427
Contact Person: Jeff Oliver, PE — Title: City Engineer
Phone Number: 763-593-8043 — Email Address: joliver@goldenvalleymn.gov
Alternate Contact Person: Eric Eckman — Title: Development and Assets Supervisor
Phone Number: 763-593-8084 — Email Address: eeckman@goldenvalleymn.gov

Operator / General Contractor (who will oversee implementation of the SWPPP): [INSERT NAME]
Mailing Address: [INSERT ADDRESS]
Contact Person: [INSERT NAME] — Title: [INSERT TITLE]
Phone Number: [INSERT NUMBER] — Email Address: [INSERT ADDRESS]

Party responsible for long-term operation and maintenance of the Permanent Stormwater Management System: City of Golden Valley
Mailing Address: 7800 Golden Valley Road, Golden Valley, MN 55427
Contact Person: Jeff Oliver, PE — Title: City Engineer
Phone Number: 763-593-8043 — Email Address: joliver@goldenvalleymn.gov

2.0 RECEIVING WATERS:

List all waters within one mile (nearest straight line distance) that are likely to receive stormwater runoff from the project site. (CSW Permit Item 5.10)

Name of Water Body	Type [1]	Water Body ID [2]	Special Water? [3]	Impaired Water? [3]	DNR Public Water with Work in Water Restrictions?
DeCola Pond A	Pond/Wetland	#27-0630P	No	No	No
DeCola Pond B	Pond/Wetland	#27-0647P	No	No	No
DeCola Pond C	Pond/Wetland	#27-0647P	No	No	No
DeCola Pond D	Pond/Wetland	-	No	No	No
DeCola Pond E	Pond/Wetland	-	No	No	No
DeCola Pond F	Pond/Wetland	-	No	No	No
Honeywell Pond	Pond	-	No	No	No
Bassett Creek	Stream	-	No	Yes	No

(1) Type examples: ditch, pond, wetland, calcareous fen, lake, stream, river
(2) Water Body identification (ID) might not be available for all water bodies. Use the Special and Impaired Waters Search Tool at: https://www.pca.state.mn.us/water/stormwater-special-and-impaired-waters-search
(3) Refer to CSW Permit Section 23
Impaired water for the following pollutant(s) or stressor(s): phosphorus (nutrient eutrophication biological indicators), turbidity, total suspended solids (TSS), dissolved oxygen, or aquatic biota (fish bioassessment, aquatic plant bioassessment, and aquatic macroinvertebrate bioassessment)

2.1 Special and Impaired Waters: The MPCA's Special and Impaired Waters Search Tool was used to locate special and impaired waters within one mile (aerial radius measurement) of the Project site. No waterbodies within one mile have an EPA-approved impairment. Bassett Creek, which is located further downstream than one mile (aerial radius), have EPA-approved impairments for chlorides, fecal coliform, and fishes bioassessments. These impairments are considered non-construction related and do not require additional best management practices (BMPs) or plan review for compliance with the General Permit. (CSW Permit Item 2.7 and Section 23)

Additional BMPs or other specific construction related implementation activities identified in an approved Total Maximum Daily Load (TMDL) are not applicable to this project. (CSW Permit Item 5.19)

2.2 Public Waters with Work in Water Restrictions: DeCola Ponds A, B, and C are identified by the DNR as public waters, but are not designated as having work in water restrictions. For water bodies that have water restrictions, during the respective restriction periods, all exposed soils within 200 feet of the water's edge will have erosion prevention stabilization activities initiated immediately after construction activity has ceased (and completed within 24 hours). (CSW Permit Item 5.11)

2.3 Wetland Impacts: If construction will result in any potential adverse impacts to wetlands, including excavation, degradation of water quality, draining, filling, permanent inundation or flooding, conversion to a stormwater pond, describe impacts and mitigation measures that were taken to address the impacts and attach copies of permits or approvals from an official state wide wetland program issued specifically for this project. (CSW Permit Items 2.4 and 2.10, and Section 22)

2.4 Environmental Review and Other Required Reviews: Describe any stormwater mitigation measures that will be implemented as a result of an environmental review (e.g., EAW or EIS), endangered or threatened species review, archeological site review, or other local, state, or federal review conducted for the project. (CSW Permit Items 2.8, 2.9, and 5.16)

2.5 Karst Areas or Drinking Water Supply Management Areas: Proposed construction activities do not fall within karst areas or drinking water supply management areas. (CSW Permit Items 16.19, 16.20, and 18.10)

3.0 PROJECT PLANS AND SPECIFICATIONS:

Required Feature	Sheet Number
• Project Location and Construction Limits	G-01
• Existing and final grades, including drainage area boundaries, directions of flow and all discharge points where stormwater is leaving the site or entering a surface water	C-01 - C-02 C-11 - C-12
• Soil types at the site	
• Locations of impervious surfaces	C-11 - C-12
• Locations of areas not be be disturbed (e.g., buffer zones, wetlands, etc.)	C-03 - C-04
• Locations of areas of steep slopes	C-01 - C-02
• Locations of areas where construction will be phased to minimize duration of exposed soils	C-10
• Locations of all temporary and permanent erosion and sediment control BMPs as required in Permit Sections 8 through 10 and 14 through 19	C-03 - C-04
• Buffer zones as required in Permit Items 9.17 and 23.11	[INSERT]
• Locations of potential pollution-generating activities identified in Permit Section 12	[INSERT]
• Standard details for erosion and sediment control BMPs to be installed at the site	C - 07

4.0 BEST MANAGEMENT PRACTICES (BMPS):

4.1 Erosion Prevention Practices: [DELETE OR ADD BMPS AS APPROPRIATE]

1. Methods of temporarily stabilizing soils and soil stockpiles (e.g., mulches, hydraulic tackifiers, erosion blankets, etc.): (CSW Permit Items 8.4, 8.5, and 23.9)
   a. Areas of exposed soil will be stabilized with one of the following: erosion control blanket, preservation of mature vegetation, mulch, vegetative slash, etc.
   b. If present, soil stockpiles will be stabilized with one of the following materials: mulch (such as straw mulch, slash mulch, wood chip, or other appropriate mulch) (if slopes ≤3h:1v), cover material such as tarps or plastic sheeting, etc.
   c. Temporary stockpiles without significant silt, clay, or organic components (e.g., clean aggregate stockpiles, demolition concrete stockpiles, sand stockpiles) and the constructed base components of roads, parking lots, and similar surfaces are exempt from these stabilization requirements.
2. Timeline for Stabilization of Exposed Soils: Where required, stabilization of exposed soil areas (including stockpiles) must be initiated immediately to limit soil erosion whenever any construction activity has permanently or temporarily ceased on any portion of the site and will not resume for a period exceeding 7 calendar days. The following activities can be taken to initiate stabilization:
   a. prepping the soil for vegetative or non-vegetative stabilization
   b. applying mulch or other non-vegetative product to the exposed soil area
   c. seeding or planting the exposed area
   d. finalizing arrangements to have stabilization product fully installed
3. Methods to be used for stabilization of ditch and swale wetted perimeters (Note that mulch, hydraulic soil tackifiers, hydromulches, etc. are not acceptable soil stabilization methods for any part of a drainage ditch or swale with a continuous slope of greater than 2 percent). (CSW Permit Items 8.6 through 8.8)
   a. In the event soils within existing stormwater ditches or swales are disturbed, they will be stabilized using one or more of the following methods: channel erosion control blanket, riprap, turf reinforcement mat, etc.
   b. Mulch, hydromulch, tackifier, polyacrylamide, or similar erosion prevention practices will not be used to stabilize any part of an existing stormwater ditch or swale.
   c. Timeline for Stabilization of Stormwater Ditches and Swales: The last 200 lineal feet of length of the normal wetted perimeter of any temporary or permanent ditch or swale that drains water from any portion of the construction site, or diverts water around the site, within 200 lineal feet from the property edge, or from the point of discharge into any surface water will be stabilized within 24 hours after connecting to a surface water or property edge. Stabilization of the remaining portions of any temporary or permanent ditches or swales will be completed within 14 calendar days after connecting to a surface water or property edge and construction in that portion of the ditch has temporarily or permanently ceased.
4. Methods to be used for energy dissipation at pipe outlets (e.g., rip rap, splash pads, gabions, etc.). (CSW Permit Item 8.9)
5. Describe timelines to be implemented at this site for completing the installation of the erosion prevention. (CSW Permit Items 5.4, 8.4 through 8.6, and 23.9)
   a. If applicable, include the timeline for completing soil stabilization for areas within 200 feet of a public water with work in water restrictions due to fish spawning time frames
   b. Soil stabilization timelines for portions of the site that drain to special or impaired waters.
   c. Before land disturbing activities begin, the limits of the areas to be disturbed during construction will be delineated (e.g., with flags, stakes, signs, silt fence, etc.).
6. Describe additional erosion prevention measures that will be implemented at the site during construction (e.g., construction phasing, minimizing soil disturbance, vegetative buffers, horizontal slope grading, slope draining/terracing, etc.). (CSW Permit Items 8.2, 8.3, and 8.10)
   a. Construction phasing will be utilized to minimize the area of soil exposed at any one time.
   b. Soil disturbance will be minimized wherever possible to aid in erosion prevention.
   c. Existing vegetation will be preserved where possible to limit exposed soil and thus will serve as natural vegetative buffers.
   d. Exposed soil on steep slopes (≤3h:1v) will be stabilized.
7. If applicable, describe additional erosion prevention BMPs to be implemented at the site to protect planned infiltration areas. (CSW Permit Items 16.4 and 16.5)

4.2 Sediment Control Practices: [DELETE OR ADD BMPS AS APPROPRIATE]

1. Methods to be used for downgradient perimeter control. (CSW Permit Items 9.2 through 9.6)
   a. Sediment control practices shall be established on all downgradient perimeters and located upgradient of any buffer zones. Perimeter sediment controls that may be used in areas of sheet flow include: silt fencing, sediment control logs / biorolls (filled with compost, wood chips, rock, etc.), vegetative slash barriers, other native material barriers, vegetative buffers (retain existing vegetation where possible), earthen berms, rock checks, etc.
   b. Perimeter sediment control practices must be installed before any upgradient land-disturbing activities begin and remain in place until permanent cover has been established.
   c. If sediment control practices have been adjusted or removed to accommodate short-term activities (such as clearing, grubbing, or passage of vehicles), the controls must be re-installed immediately after the short-term activity has been completed. Sediment control practices must be re-installed before the next precipitation event, even if the short-term activity is not complete.
   d. If the downgradient sediment controls are overloaded (based on frequent failure or excessive maintenance requirement), install additional upgradient sediment control practices or redundant BMPs to eliminate the overloading and amend the SWPPP to identify these additional practices.
2. Methods to be used to contain soil stockpiles. (CSW Permit Items 9.9 and 9.10)
   a. Any temporary soil stockpiles shall be surrounded by silt fencing or biorolls (or other effective sediment controls) and shall not be placed in any natural buffers or surface waters.
3. Methods to be used for storm drain inlet protection. (CSW Permit Items 9.7 and 9.8)
   a. If storm drains are present, inlet protection BMPs will be installed around all storm drain inlets downgradient of construction activities. Storm drain inlets will be protected until all sources with potential for discharging to the inlet have been stabilized. Inlet protection BMPs that may be used include: sediment control log, filter sack, rock with filter fabric, filter fence box, etc.
4. Methods to minimize vehicle tracking at construction exits and street sweeping activities. (CSW Permit Items 9.11 and 9.12)
   a. A vehicle tracking BMP (such as a rock pads, mud mats, slash mulch, concrete or steel wash racks, or an equivalent system) shall be installed to minimize the tracking out of sediment from the construction area.
   b. If such vehicle tracking BMPs are not adequate to prevent sediment from being tracked onto the paved road, street sweeping will also be employed. Sediment will be removed by sweeping within 24 hours.
5. If applicable, additional sediment controls (e.g., diversion berms) will be installed to keep runoff away from planned infiltration areas when excavated prior to establishing permanent cover within the contributing drainage area. (CSW Permit Items 16.4 and 16.5)
6. Describe methods to be used to minimize soil compaction and preserve top soil (unless infeasible) at this site. (CSW Permit Items 5.24, 9.14, and 9.15)
7. Methods to be used to promote infiltration and sediment removal on the site prior to offsite discharge, unless infeasible. (CSW Permit Item 9.16)
   a. Discharges from BMPs will be directed to vegetated areas of the site (including any natural buffers) in order to increase sediment removal and maximize stormwater infiltration. If erosion is noted to occur as the result of such a discharge, velocity dissipation BMPs will be considered and installed as necessary to prevent erosion.
8. Describe plans to preserve a 50-foot natural buffer between the project's soil disturbance and a surface water or plans for redundant sediment controls if a buffer is infeasible. (CSW Permit Item 9.17)
   a. In wetlands and non-special waters, a 50-foot natural buffer shall be preserved. When a surface water is located within 50 feet of the project's earth disturbances and stormwater flows to the surface water, or when a buffer is infeasible, redundant sediment controls shall be provided. Redundant perimeter controls will be installed at least 5 feet apart unless limited by lack of available space.
   b. A 100-foot natural buffer shall be preserved in construction areas discharging to special waters or, if a buffer is infeasible, redundant sediment controls shall be provided, when a special water is located within 100 feet of the Project's earth disturbances and stormwater flows to the surface water.
9. Describe plans for use of sedimentation treatment chemicals (e.g., polymers, flocculants, etc.). (CSW Permit Items 5.22 and 9.18)
10. If required to install a temporary sediment basin due to 10 or more acres draining to a common location or 5 acres or more if the site is within 1 mile of a special or impaired water, describe (or attach plans) showing how the basin will be designed and constructed. (CSW Permit Items 5.6, 9.13, and 23.10 and Section 14)

4.3 Dewatering and Basin Draining: If the project will include dewatering or basin draining, describe measures to be used to treat/dispose of turbid or sediment-laden water and method to prevent erosion or scour of discharge points. (CSW Permit Section 10)

1. If the project include use of filters for backwash water, describe how filter backwash water will be managed on the site or properly disposed. (CSW Permit Item 10.5)

4.4 BMP Design Factors: The following BMP design factors have been considered in designing the temporary erosion prevention and sediment control BMPs:

1. Expected amount, frequency, intensity, and duration of precipitation: [DESCRIBE]
2. Nature of stormwater runoff and run-on at the site, including factors such as expected flow from impervious surfaces, slopes, and site drainage features: [DESCRIBE]
3. Stormwater volume, velocity, and peak flow rates to minimize discharge of pollutants in stormwater and to minimize channel and streambank erosion and scour in the immediate vicinity of discharge points: [DESCRIBE]
4. Range of soil particle sizes expected to be present: [DESCRIBE]

4.5 BMP Quantities: Anticipated erosion prevention and sediment control BMP quantities needed for the life of the project:

- Inlet Protection (Each): 8
- Silt Fence (LF): 420
- Silt Curtain (LF): 135
- Erosion Control Blanket (SF): 9,580
- Turf Reinforcement Mat (SF): 2,470

5.0 PERMANENT STORMWATER MANAGEMENT SYSTEM:

Complete this section if the project result in one acre or more of new impervious surfaces or result in a net increase of one or more acres of cumulative new impervious surfaces in total if the project is part of a larger plan of development. (CSW Permit Item 15.3)

5.1 A water quality volume of one inch of runoff from the net increase in cumulative new impervious surfaces created by the project must be retained on-site through volume reduction practices (e.g., infiltration or other) unless prohibited due to one of the reasons in Permit Items 16.14 through 16.21. If infiltration is prohibited, identify other method(s) to treat the water quality volume (e.g., wet sedimentation basin, filtration basin, regional pond, or equivalent method). (CSW Permit Items 5.15, 15.4 through 15.9, and 23.14)

5.2 Attach design parameters for the planned permanent stormwater treatment system, including volume calculations, discharge rate calculation, construction details including basin depth, outlet configurations, location, design of pre-treatment devices and timing for installation. (CSW Permit Items 5.6 and 5.25 and Sections 16 through 19)

5.3 For infiltration systems, attach on-site soil testing results verifying soil type and distance to the seasonal water table or bedrock (from bottom of the basin) in the location of the infiltration or filtration system. (CSW Permit Items 16.10 and 16.12)

5.4 For linear projects with lack of right of way to install treatment systems capable of treating the entire water quality volume, identify other method(s) for providing treatment of runoff prior to discharge (e.g., grassed swales, filtration systems, smaller ponds or grit chambers, etc.). (CSW Permit Item 15.9)

5.5 Attach documentation of reasonable attempts made to obtain right of way for stormwater treatment systems. (CSW Permit Items 5.13 and 15.9)

5.6 For projects that discharge to trout streams, including tributaries to trout streams, identify temperature controls in the permanent stormwater treatment system. (CSW Permit Item 23.12)

50% DESIGN DRAFT

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINTED NAME KURT A. LEUTHOLD
SIGNATURE
DATE LICENSE #

	A	B	C	0	1	2	3
CLIENT	—	—	—	—	—	—	—
BID	—	—	—	—	—	—	—
CONSTRUCTION	—	—	—	—	—	—	—
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	—	—	—	—	—	—	—
RELEASED TO/FOR	DATE RELEASED						

BARR
Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277

city of golden valley

Scale	
Date	01/25/2019
Drawn	KJN2
Checked	JAK2
Designed	JAK2
Approved	KAL

CITY OF GOLDEN VALLEY
GOLDEN VALLEY, MN

DECOLA PONDS B&C
IMPROVEMENT PROJECT

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

BARR PROJECT No.	23/27-1677.00
CLIENT PROJECT No.	#18-06
DWG. No.	C-05
REV. No.	A

6.0 INSPECTION AND MAINTENANCE ACTIVITIES:

6.1 Persons with Required Training: Trained individuals include those parties responsible for installing, supervising, repairing, inspecting, and maintaining erosion prevention and sediment control BMPs at the site. Trained individuals are also responsible for implementation of the SWPPP and compliance with the General Permit until the construction activities are complete, permanent cover has been established, and a Notice of Termination (NOT) has been submitted. (CSW Permit Items 5.20, 5.21, and 11.9 and Section 21)

These individuals will be trained in accordance with the requirements of the General Permit, including the requirement that the content and extent of training will be commensurate with the individual's job duties and responsibilities.

Below is a list of people responsible for this project who are knowledgeable and experienced in the application of erosion prevention and sediment control BMPs.

Trained Individual	Responsibility	Training Entity*	Training Date
[INSERT NAME]	Preparation of the SWPPP	[INSERT ENTITY]	[INSERT DATE]
[INSERT NAME]	Oversight of SWPPP Implementation, Revision, and Ammendment	[INSERT ENTITY]	[INSERT DATE]
[INSERT NAME]	Performance of SWPPP Inspections	[INSERT ENTITY]	[INSERT DATE]
[INSERT NAME]	Performance or Supervision of Installation, Maintenance, and Repair of BMPs	[INSERT ENTITY]	[INSERT DATE]

*Training documentation available upon request.

6.2 Frequency of Inspections: A trained person will routinely inspect the entire construction site. (CSW Permit Items 11.2, 11.10, and 23.13)

- at least once every 7 days during active construction
- within 24 hours after a rainfall event greater than 0.5 inches in 24 hours

Inspection frequency may be adjusted under the following circumstances:

- Where parts of the construction areas have permanent cover, but work remains on other parts of the site, inspections of the areas with permanent cover may be reduced to once per month.
- Where construction areas have permanent cover and no construction activity is occurring on the site, inspections can be reduced to once per month and, after 12 months, may be suspended completely until construction activity resumes.
- Where construction activity has been suspended due to frozen ground conditions, the inspections may be suspended. The required inspections and maintenance schedule must begin within 24 hours after runoff occurs at the site or upon resuming construction, whichever comes first.

6.3 Inspection Requirements: Each construction stormwater site inspection shall include inspection of the following areas. (CSW Permit Items 11.3 through 11.8)

- all erosion prevention and sediment control BMPs and pollution prevention management measures
- surface waters for evidence of erosion and sediment deposition
- construction site vehicle exit locations for evidence of off site sediment tracking
- streets and other areas adjacent to the project for evidence of off site accumulations of sediment

6.4 Maintenance Requirements: Maintenance of the following areas and BMPs shall be performed as follows: (CSW Permit Items 11.3 through 11.8)

- Nonfunctional BMPs will be repaired, replaced, or supplemented with functional BMPs by the end of the next business day after discovery or as soon as field conditions allow access.
- Perimeter control devices will be repaired, replaced, or supplemented when they become nonfunctional or the sediment reaches 1/2 of the height of the device.
- Temporary and permanent sedimentation basins will be drained and the sediment removed when the depth of sediment collected in the basin reaches 1/2 the storage volume.
- Deltas and sediment deposited in surface waters will be removed, and the areas where sediment removal results in exposed soil will be re-stabilized. The removal and stabilization will be completed within 7 calendar days of discovery unless precluded by legal, regulatory, or physical access constraints. If precluded due to access constraints, reasonable efforts to obtain access will be used. Removal and stabilization will take place within 7 calendar days of obtaining access.
- Tracked sediment on paved surfaces will be removed within 1 calendar day of discovery.
- Areas undergoing stabilization will be restabilized as necessary to achieve required cover.

6.5 Recordkeeping Requirements: (CSW Permit Items 11.11 and 24.5 and Sections 6 and 20)

1. All inspections and maintenance activities must be recorded in writing within 24 hours of being conducted and these records must be retained with the SWPPP. Records of each inspection and maintenance activity shall include the date and time; name of inspector(s); findings of inspections; corrective actions (including dates, times, and party completing maintenance activities); and date of all rainfall events greater than 0.5 inches in 24 hours and the amount of rainfall for each event.
   a. If any discharge is observed during the inspection, document the location and appearance of the discharge (i.e., color, odor, settled or suspended solids, oil sheen, and other obvious indicators of pollutants), and a photograph of the discharge.
2. The SWPPP will be amended to include additional or modified BMPs to correct problems or address situations whenever there is a change in design, construction, operation, maintenance, weather, or seasonal conditions that has a significant effect on the discharge of pollutants to surface waters or groundwater.
   a. The SWPPP will be amended when inspections or investigations by the site owner, operator, or contractors or by USEPA/MPCA officials indicate that the SWPPP is not effective in eliminating or minimizing the discharge of pollutants to surface waters or groundwater; the discharges are causing water quality standard exceedances; or the SWPPP is not consistent with a USEPA approved TMDL.
   b. Any amendments to the SWPPP proposed as a result of the inspection will be documented as required within 7 calendar days.
   c. Amendments will be completed by an appropriately trained individual. Changes involving the use of a less stringent BMP will include a justification describing how the replacement BMP is effective for the site characteristics.
3. Records Retention: The SWPPP, including all changes to it, and inspection and maintenance records must be kept at the site during construction by the permittee who has operational control of the site. The SWPPP can be kept in either a field office or in an on site vehicle during normal working hours.
4. Record Availability: The permittees must make the SWPPP, including inspection reports, maintenance records, and training records, available to federal, state, and local officials within three days upon request for the duration of the permit coverage and for three years following the NOT.

7.0 POLLUTION PREVENTION MEASURES:

1. Any construction products and landscape materials that have the potential to leach pollutants shall be stored under cover (e.g., plastic sheeting or temporary roofs) to prevent discharge of pollutants through minimization of contact with stormwater. Storage of such materials within the Project area will be minimized to the extent possible. (CSW Permit Item 12.2)
2. Pesticides, fertilizers, and treatment chemicals will be stored under cover (e.g., plastic sheeting, temporary roofs, within a building, or in weather-proof containers) to prevent discharge of pollutants through minimization of contact with stormwater. Storage of such materials within the Project area will be minimized to the extent possible. (CSW Permit Item 12.3)
3. Hazardous materials and toxic waste (e.g., oil, diesel fuel, gasoline, hydraulic fluids, paint solvents, petroleum-based products, wood preservatives, additives, curing compounds, and acids) shall be stored and disposed of in compliance with Minnesota Rules Chapter 7045, including secondary containment (as applicable). Hazardous materials shall be properly stored in sealed containers to prevent spills, leaks, or other discharges and prevent precipitation from falling onto the containers or stored hazardous materials. (CSW Permit Items 2.3 and 12.4)
4. Solid waste shall be collected, stored, and disposed of properly in compliance with Minnesota Rules Chapter 7035. This includes storage within covered trash containers and daily removal of litter and debris. Storage of solid waste within the Project area will be minimized to the extent possible. (CSW Permit Item 12.5)
5. Portable toilets will be located away from surface waters and positioned and secured to the ground so they will not be tipped or knocked over. Sanitary waste will be disposed of in accordance with Minnesota Rules, chapter 7041. Portable toilets will be periodically emptied and the waste hauled off-site by a licensed hauler. (CSW Permit Item 12.6)
6. Vehicle fueling will only occur in designated areas. Spill kits sized appropriately for the amount of refueling taking place will be located. Spill kits will be clearly labeled and contain materials to assist in spill cleanup including absorbent pads, booms for containing spills, and heavy-duty protective gloves. Spills will be reported to the Minnesota Duty Officer as required by Minnesota Statutes, section 115.061. (CSW Permit Items 2.3 and 12.7)
   a. Any fuel tanks brought on-site will have properly sized containment and will not be topped off to avoid spills from overfilling. Fuel tanks will meet industry standards (designed to hold fuel type, properly maintained, not illegally modified, not missing leak indicator floats for double walled tanks, sight gauges not used, etc.) or be removed from the work area.
   b. Guidelines for spill prevention and response include:
      - Take reasonable steps to prevent the discharge of spilled or leaked chemicals, including fuel, from any area where chemicals or fuel will be loaded or unloaded, including the use of drip pans or absorbents unless infeasible;
      - Perform regular preventative maintenance on tanks and fuel lines;
      - Inspect pumps, cylinders, hoses, valves, and other mechanical equipment on-site for damage or deterioration;
      - Do not wash or rinse fueling areas with water;
      - Maintain adequate supplies to clean up discharged materials and provide an appropriate disposal method for recovered spilled materials;
      - Report and clean up spills immediately as required by Minnesota Statutes, section 115.061, using dry clean up measures where possible; and
      - Maintain copies of safety data sheets (SDSs) for hazardous materials on-site in locations readily available to emergency responders.
7. If vehicle and equipment washing is necessary, a vehicle wash station will be located in a designated area. Runoff from the washing area will be contained in a sediment basin and waste from the washing activity will be properly disposed of. Any soaps, detergents, or solvents will be properly used and stored. Any detergents and other cleaners not permitted for discharge will not be used. (CSW Permit Items 2.3 and 12.8)
8. The Project will not result in concrete or other washout activities. If necessary, a description of the storage and disposal of concrete and other washout wastes so that wastes do not contact the ground will be added. (CSW Permit Items 2.3 and 12.9)

8.0 PERMANENT COVER AND PERMIT TERMINATION CONDITIONS:

1. The areas disturbed during construction will be stabilized with permanent cover upon completion of work. Permanent cover may be vegetative or non-vegetative, as appropriate. Establishment of permanent cover may include the following activities: Placement of erosion control blanket; placement of turf reinforcing mat; upland zone seed mixes and plugs; wetland meadow seed mixes and plugs; bituminous surfaces. (CSW Permit Item 5.17)
2. For a construction-site to achieve “permanent cover”, the following requirements must be completed prior to termination of permit coverage (CSW Permit Sections 4 and 13):
   a. All soil disturbing construction activities have been completed and permanent cover has been installed over all areas. Vegetative cover consists of a uniform perennial vegetation with a density of 70% of its expected final growth. Vegetation is not required where the function of a specific area dictates no vegetation (such as impervious surfaces or the base of a sand filter).
   b. All sediment has been removed from conveyance systems, including culverts.
   c. All temporary synthetic erosion prevention and sediment control BMPs have been removed. BMPs designed to decompose on-site may be left in place.

Submit a Notice of Termination (NOT) form to the MPCA within 30 days after the termination conditions are complete.

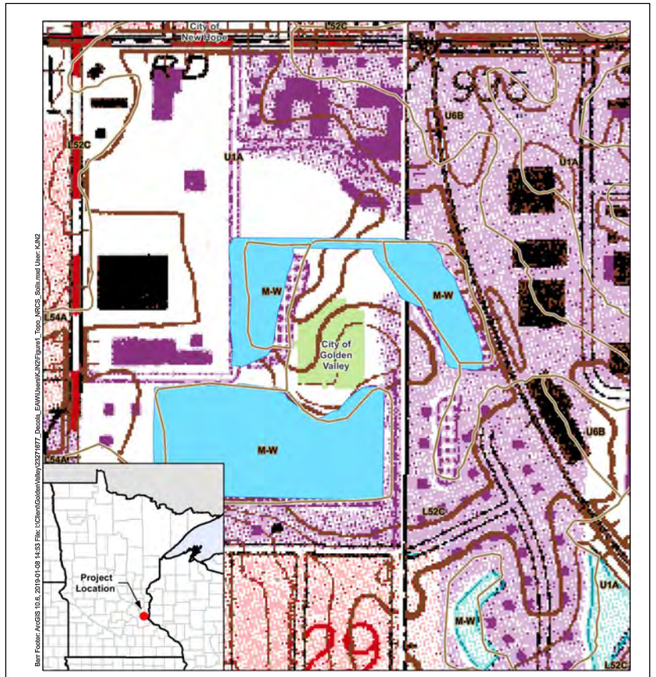


Figure 1

TOPOGRAPHIC MAP WITH SURFACE WATERS AND SOIL TYPES
Stormwater Pollution Prevention Plan
Hennepin County, Minnesota

50% DESIGN DRAFT

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINTED NAME KURT A. LEUTHOLD
SIGNATURE
DATE LICENSE #

CLIENT							
BID							
CONSTRUCTION							
RELEASED TO/FOR	A	B	C	0	1	2	3
DATE RELEASED							

BARR
Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277

city of golden valley

Scale	
Date	01/11/2019
Drawn	KJN2
Checked	JAK2
Designed	JAK2
Approved	KAL

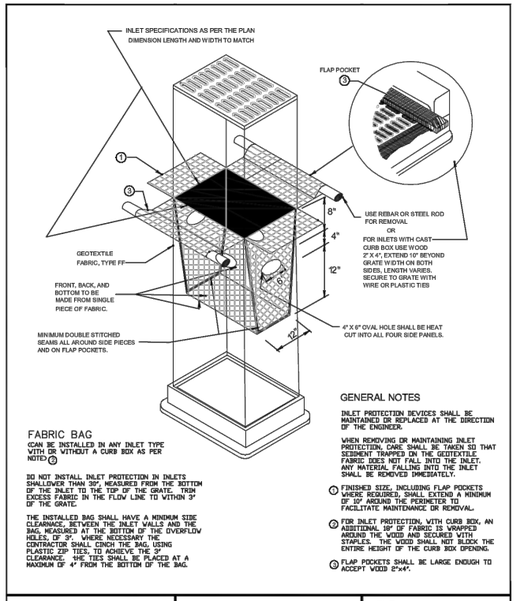
CITY OF GOLDEN VALLEY
GOLDEN VALLEY, MN

DECOLA PONDS B&C
IMPROVEMENT PROJECT

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

BARR PROJECT No.	23/27-1677.00
CLIENT PROJECT No.	#18-06
DWG. No.	C-06
REV. No.	A

CADD USER: Katie J. Turpin-Nagel FILE: M:\DESIGN\23271677.00\23271677.00_C-05_SWPPP.DWG PLOT SCALE: 1:2 PLOT DATE: 1/11/2019 4:30 PM

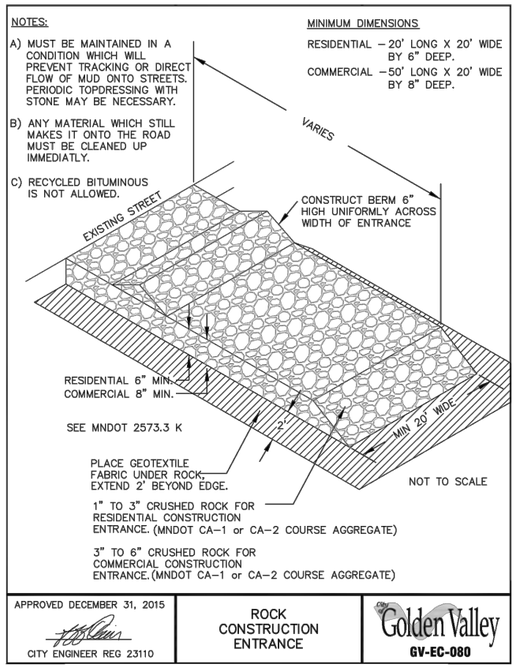


APPROVED DECEMBER 31, 2015
CITY ENGINEER REG 23110

FAST FLOW INLET BAG TO PROTECT STORM INLETS

Golden Valley
GV-EC-090

1 DETAIL: INLET PROTECTION
AS SHOWN

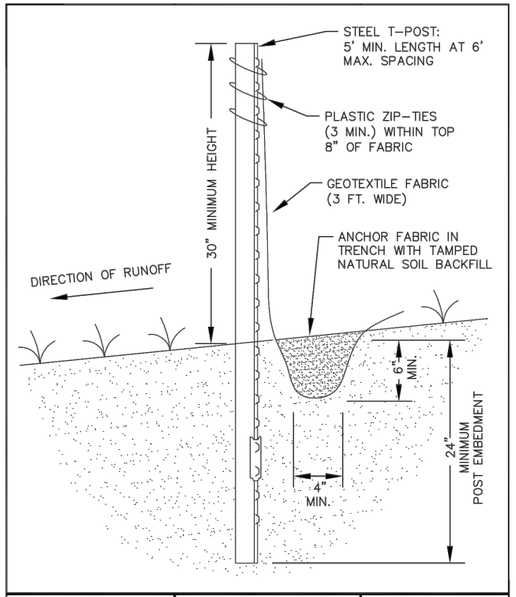


APPROVED DECEMBER 31, 2015
CITY ENGINEER REG 23110

ROCK CONSTRUCTION ENTRANCE

Golden Valley
GV-EC-080

2 DETAIL: ROCK CONSTRUCTION ENTRANCE
AS SHOWN

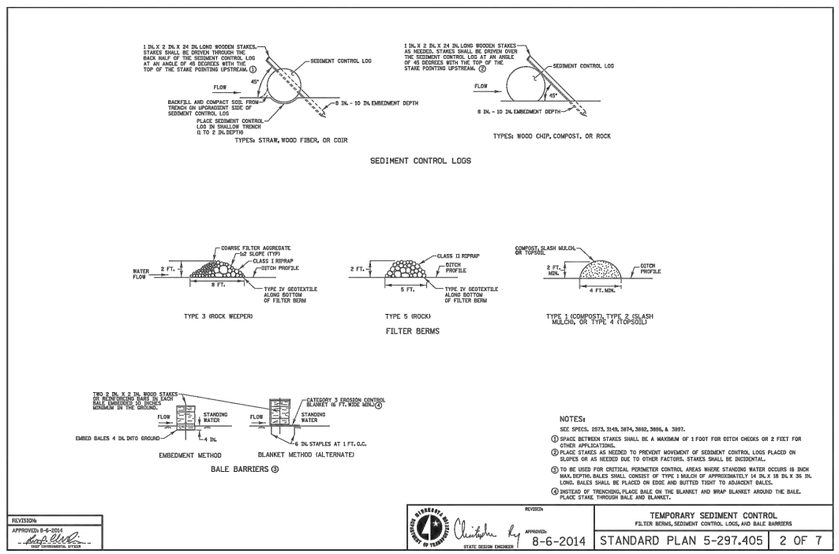


APPROVED DECEMBER 31, 2015
CITY ENGINEER REG 23110

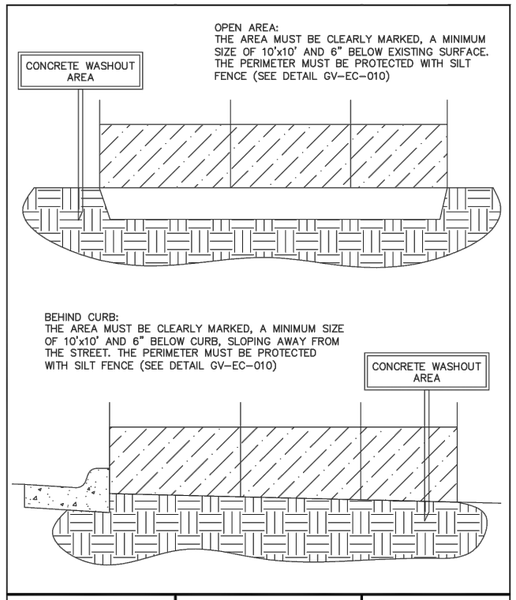
INSTALLATION OF HEAVY DUTY SILT FENCE

Golden Valley
GV-EC-020

3 DETAIL: SILT FENCE
AS SHOWN



4 DETAIL: TEMPORARY SEDIMENT CONTROL
AS SHOWN

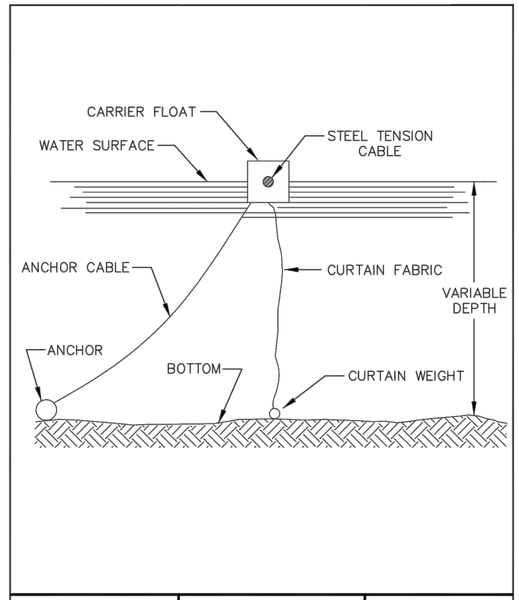


APPROVED DECEMBER 31, 2015
CITY ENGINEER REG 23110

CONCRETE WASHOUT AREA

Golden Valley
GV-EC-100

5 DETAIL: CONCRETE WASHOUT AREA
AS SHOWN



APPROVED DECEMBER 31, 2015
CITY ENGINEER REG 23110

FLOTATION SILT CURTAIN

Golden Valley
GV-EC-040

6 DETAIL: FLOATATION SILT CURTAIN
AS SHOWN

50% DESIGN DRAFT

CADD USER: Katie J. Turpin-Nagel FILE: M:\DESIGN\23271677.00\23271677.00\23271677.00_C-07_EROSION CONTROL DETAILS.DWG PLOT SCALE: 1:2 PLOT DATE: 1/14/2019 7:44 AM

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINTED NAME KURT A. LEUTHOLD
SIGNATURE
DATE LICENSE #

	A	B	C	0	1	2	3
CLIENT							
BID							
CONSTRUCTION							
RELEASED TO/FOR	DATE RELEASED						

BARR
Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277

city of golden valley

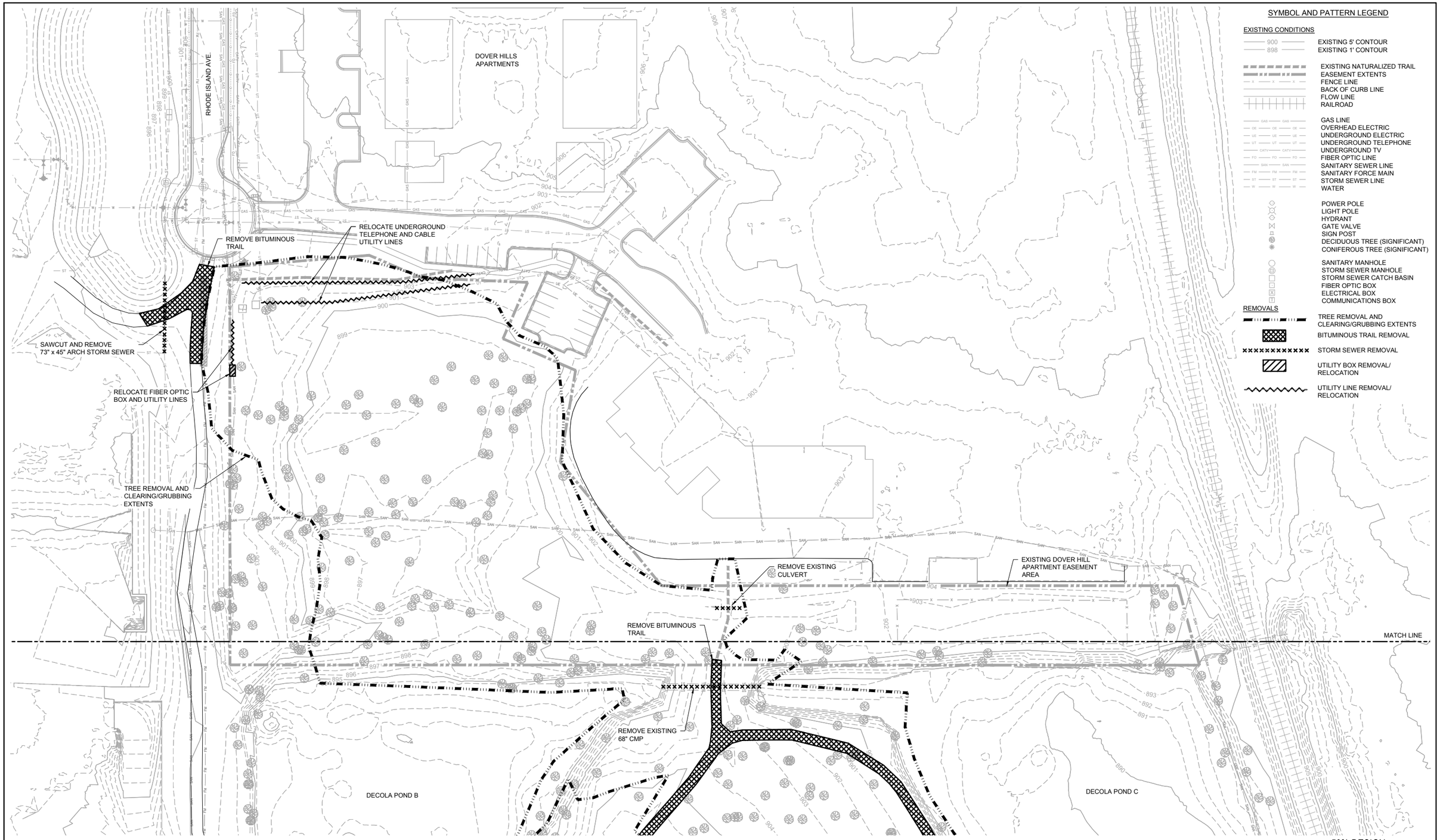
Scale	
Date	01/11/2019
Drawn	KJN2
Checked	JAK2
Designed	JAK2
Approved	KAL

CITY OF GOLDEN VALLEY
GOLDEN VALLEY, MN

DECOLA PONDS B&C
IMPROVEMENT PROJECT

DETAILS
EROSION CONTROL

BARR PROJECT No.	23/27-1677.00
CLIENT PROJECT No.	#18-06
DWG. No.	C-07
REV. No.	A



SYMBOL AND PATTERN LEGEND

EXISTING CONDITIONS

- EXISTING 5' CONTOUR
- EXISTING 1' CONTOUR
- EXISTING NATURALIZED TRAIL
- EASEMENT EXTENTS
- FENCE LINE
- BACK OF CURB LINE
- FLOW LINE
- RAILROAD
- GAS LINE
- OVERHEAD ELECTRIC
- UNDERGROUND ELECTRIC
- UNDERGROUND TELEPHONE
- UNDERGROUND TV
- FIBER OPTIC LINE
- SANITARY SEWER LINE
- SANITARY FORCE MAIN
- STORM SEWER LINE
- WATER
- POWER POLE
- LIGHT POLE
- HYDRANT
- GATE VALVE
- SIGN POST
- DECIDUOUS TREE (SIGNIFICANT)
- CONIFEROUS TREE (SIGNIFICANT)
- SANITARY MANHOLE
- STORM SEWER MANHOLE
- STORM SEWER CATCH BASIN
- FIBER OPTIC BOX
- ELECTRICAL BOX
- COMMUNICATIONS BOX

REMOVALS

- TREE REMOVAL AND CLEARING/GRUBBING EXTENTS
- BITUMINOUS TRAIL REMOVAL
- STORM SEWER REMOVAL
- UTILITY BOX REMOVAL/ RELOCATION
- UTILITY LINE REMOVAL/ RELOCATION

1 PLAN: REMOVALS - DOVER HILLS APARTMENTS' EASEMENT AREA
1"=40'-0"

N

0 40 80
SCALE IN FEET

50% DESIGN DRAFT

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

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PRINTED NAME _____

SIGNATURE _____

DATE _____ LICENSE # _____

CLIENT							
BID							
CONSTRUCTION							
RELEASED TO/FOR	A	B	C	0	1	2	3
	DATE RELEASED						

BARR
Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277

city of golden valley

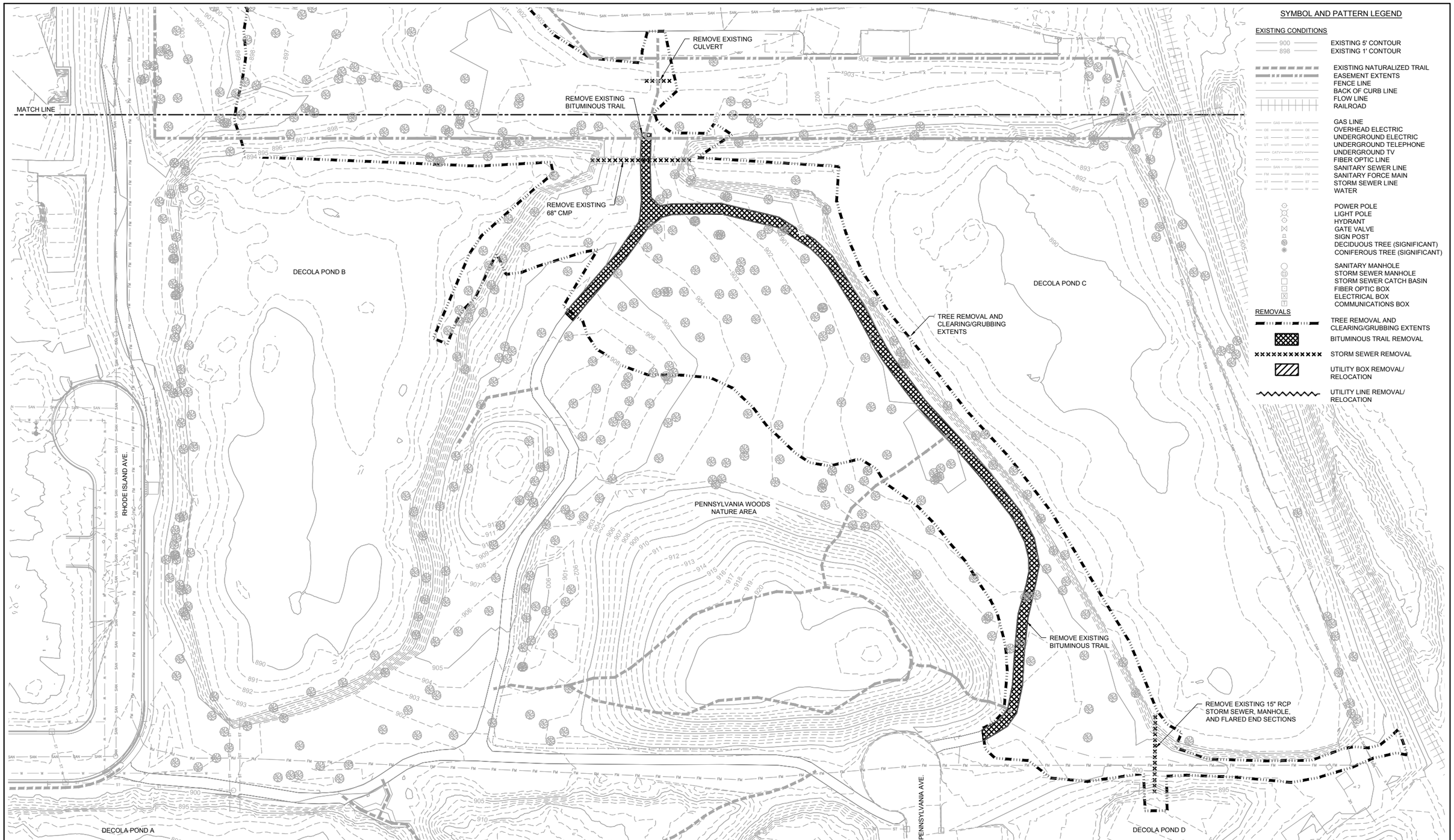
Scale	AS SHOWN
Date	01/29/2019
Drawn	KJN2
Checked	JAK2
Designed	JAK2
Approved	KAL

CITY OF GOLDEN VALLEY
GOLDEN VALLEY, MN

DECOLA PONDS B&C
IMPROVEMENT PROJECT

REMOVALS AND RELOCATIONS
DOVER HILLS APARMENT EASEMENT AREA

BARR PROJECT No.	23/27-1677.00
CLIENT PROJECT No.	#18-06
DWG. No.	C-08
REV. No.	A



SYMBOL AND PATTERN LEGEND

EXISTING CONDITIONS

- EXISTING 5' CONTOUR
- EXISTING 1' CONTOUR
- EXISTING NATURALIZED TRAIL
- EASEMENT EXTENTS
- FENCE LINE
- BACK OF CURB LINE
- FLOW LINE
- RAILROAD
- GAS LINE
- OVERHEAD ELECTRIC
- UNDERGROUND ELECTRIC
- UNDERGROUND TELEPHONE
- UNDERGROUND TV
- FIBER OPTIC LINE
- SANITARY SEWER LINE
- SANITARY FORCE MAIN
- STORM SEWER LINE
- WATER
- POWER POLE
- LIGHT POLE
- HYDRANT
- GATE VALVE
- SIGN POST
- DECIDUOUS TREE (SIGNIFICANT)
- CONIFEROUS TREE (SIGNIFICANT)
- SANITARY MANHOLE
- STORM SEWER MANHOLE
- STORM SEWER CATCH BASIN
- FIBER OPTIC BOX
- ELECTRICAL BOX
- COMMUNICATIONS BOX

REMOVALS

- TREE REMOVAL AND CLEARING/GRUBBING EXTENTS
- BITUMINOUS TRAIL REMOVAL
- STORM SEWER REMOVAL
- UTILITY BOX REMOVAL/ RELOCATION
- UTILITY LINE REMOVAL/ RELOCATION

1 - PLAN: REMOVALS - DECOLA PONDS B AND C
1"=40'-0"

N

0 40 80
SCALE IN FEET

50% DESIGN DRAFT

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

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PRINTED NAME _____

SIGNATURE _____

DATE _____ LICENSE # _____

RELEASED TO/FOR	A	B	C	0	1	2	3
CLIENT							
BID							
CONSTRUCTION							
DATE RELEASED							

BARR
Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277

city of golden valley

Scale	AS SHOWN
Date	01/29/2019
Drawn	KJN2
Checked	JAK2
Designed	JAK2
Approved	KAL

CITY OF GOLDEN VALLEY
GOLDEN VALLEY, MN

DECOLA PONDS B&C
IMPROVEMENT PROJECT

REMOVALS AND RELOCATIONS
DECOLA PONDS B & C

BARR PROJECT No.	
23/27-1677.00	
CLIENT PROJECT No.	
#18-06	
DWG. No.	REV. No.
C-09	A

NOTES:

1) IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE DIMENSIONS OF THE BERM BEST SUITED FOR THE ELECTED DEWATERING APPROACH. THE TOP WIDTH CAN BE REDUCED, THE SIDE SLOPES MADE STEEPER (2:1 MAX), AND THE TOP OF BERM ELEVATION INCREASED AS LONG AS STABILITY IS MAINTAINED.
2) A BERM OVERFLOW CAN BE PROVIDED. THE DIMENSIONS AND EROSION PROTECTION METHODS TO BE DETERMINED BY THE CONTRACTOR.
3) CONTRACTOR MAY ELECT TO RELY ON PUMPING ALL THE WATER INSTEAD OF INSTALLING TEMPORARY, ADJUSTABLE GRAVITY DRAIN STRUCTURES. MEANS AND METHODS TO BE DETERMINED BY THE CONTRACTOR.

MATCH LINE

INSTALL TEMPORARY DRAINAGE DITCH, BOTTOM ELEV. = 890, 2:1 SIDE SLOPES

INSTALL TEMPORARY 60" STORM SEWER W. INV. = 890.0 E INV. = 890.0

INSTALL TEMPORARY DRAINAGE DITCH, BOTTOM ELEV. = 890, 2:1 SIDE SLOPES

EXISTING DOVER HILLS APARTMENT EASEMENT AREA

INSTALL TEMPORARY BERM, SHOWN AS TOP ELEV. = 896.0 WITH 3:1 SIDE SLOPES. CONTRACTOR TO DETERMINE FINAL TOP ELEV. AND SIDE SLOPES TO EFFECTIVELY DEWATER AS REQUIRED

DECOLA POND B NORTH

DRAIN ALL STANDING WATER PRIOR TO 9/15/2019 AND MAINTAIN DRAINED CONDITION THROUGH CONSTRUCTION

DECOLA POND C NORTH

DRAIN ALL STANDING WATER PRIOR TO 9/15/2019 AND MAINTAIN DRAINED CONDITION THROUGH CONSTRUCTION

INSTALL TEMPORARY PUMP TO KEEP DRAW DOWN AREA DRY FOLLOWING PRECIPITATION EVENTS; INCLUDE NOISE BAFFLING FOR NOISE REDUCTION

OPTIONAL: INSTALL TEMPORARY, ADJUSTABLE GRAVITY DRAIN STRUCTURE: AGRIDRAIN, NYLOPLAST, OR APPROVED EQUAL. ADJUSTABLE CONTROL STRUCTURE SET TO ELEVATION 895.0 TO DEVELOP ENOUGH HEAD TO GRAVITY DRAIN DECOLA POND C SOUTH

INSTALL TEMPORARY BERM, SHOWN AS TOP ELEV. = 896.0 WITH 3:1 SIDE SLOPES. CONTRACTOR TO DETERMINE FINAL TOP ELEV. AND SIDE SLOPES TO EFFECTIVELY DEWATER AS REQUIRED

RHODE ISLAND AVE.

OPTIONAL: INSTALL TEMPORARY, ADJUSTABLE GRAVITY DRAIN STRUCTURE, AGRIDRAIN, NYLOPLAST, OR APPROVED EQUAL. MAXIMUM ELEVATION OF DECOLA POND B SOUTH AND DECOLA POND A = 893.8. MINIMUM ELEVATION = 892.18

PENNSYLVANIA WOODS NATURE AREA

DECOLA POND C SOUTH

DECOLA POND B SOUTH

INSTALL PERMANENT STORM SEWER OUTLET CONFIGURATION WITHOUT WEIR TO GRAVITY DRAIN TO 892.18. SEE 1/C-17

PENNSYLVANIA AVE.

DECOLA POND A
EXISTING NWL = 893.8
OHWL = 895.3

DECOLA POND D
NWL = 892.18

SYMBOL AND PATTERN LEGEND

EXISTING CONDITIONS

- EXISTING 5' CONTOUR
- EXISTING 1' CONTOUR
- EXISTING NATURALIZED TRAIL EASEMENT EXTENTS
- FENCE LINE
- BACK OF CURB LINE
- FLOW LINE
- RAILROAD
- GAS LINE
- OVERHEAD ELECTRIC
- UNDERGROUND ELECTRIC
- UNDERGROUND TELEPHONE
- UNDERGROUND TV
- FIBER OPTIC LINE
- SANITARY SEWER LINE
- SANITARY FORCE MAIN
- STORM SEWER LINE
- WATER
- POWER POLE
- LIGHT POLE
- HYDRANT
- GATE VALVE
- SIGN POST
- DECIDUOUS TREE (SIGNIFICANT)
- CONIFEROUS TREE (SIGNIFICANT)
- SANITARY MANHOLE
- STORM SEWER MANHOLE
- STORM SEWER CATCH BASIN
- FIBER OPTIC BOX
- ELECTRICAL BOX
- COMMUNICATIONS BOX

DRAW DOWN PLAN

- PROPOSED 5' CONTOUR
- PROPOSED 1' CONTOUR
- PROPOSED STORM SEWER
- PROPOSED STORM MANHOLE

DRAWDOWN SEQUENCE OPTIONS (INITIAL DRAWDOWN MUST BE COMPLETED BEFORE 9/15/2019):

1) INSTALL PERMANENT OUTLET CONTROL STRUCTURE AT SOUTH END OF DECOLA POND C WITHOUT THE NOTCHED WEIR TO ALLOW DECOLA POND C TO GRAVITY DRAIN TO 892.18 AND DECOLA PONDS A AND B TO GRAVITY DRAIN TO 893.0 (EXISTING INVERT OF PIPE BETWEEN DECOLA PONDS B AND C).
2) CONTRACTOR CAN ELECT TO INSTALL A TEMPORARY STORM SEWER OR THE PROPOSED STORM SEWER BETWEEN DECOLA PONDS B AND C AT INVERT ELEV. 890.0 TO GRAVITY DRAIN DECOLA PONDS A AND B TO 892.18.
3) CONTRACTOR CAN ELECT TO TEMPORARILY BULKHEAD DECOLA POND A AND PUMP DECOLA POND B IN ITS ENTIRETY TO ASSIST IN THE EXCAVATION OF THE DRAINAGE CHANNEL AND THE CONSTRUCTION OF THE TEMPORARY BERM. ALTERNATIVELY, THE CONTRACTOR MAY CHOOSE TO CONSTRUCT THE BERM AND EXCAVATE THE DRAINAGE DITCH IN WET CONDITIONS.
4) INSTALL DECOLA POND B TEMPORARY BERM AND TEMPORARY CONTROL STRUCTURE. REMOVE DECOLA POND A BULKHEAD, IF CONSTRUCTED. THE LOWEST WSE OF DECOLA POND A AND DECOLA POND B SOUTH SHALL BE 892.18. THE CONTROL STRUCTURE SHOULD ALLOW FOR A MAXIMUM WSE OF THIS AREA EQUAL TO 893.8 THROUGH THE TEMPORARY, GRAVITY DRAIN CONTROL STRUCTURE.
5) CONTRACTOR CAN ELECT TO PUMP DECOLA POND C IN ITS ENTIRETY FOLLOWING GRAVITY DRAWDOWN TO ASSIST IN THE EXCAVATION OF THE DRAINAGE CHANNEL AND THE CONSTRUCTION OF THE TEMPORARY BERM, AFTER WHICH TIME, THE MINIMUM WSE SHALL BE 892.18. ALTERNATIVELY, THE CONTRACTOR MAY CHOOSE TO CONSTRUCT THE BERM AND EXCAVATE THE DRAINAGE DITCH IN WET CONDITIONS.
4) INSTALL DECOLA POND C TEMPORARY BERM AND TEMPORARY CONTROL STRUCTURE. THE LOWEST WSE OF DECOLA POND C SOUTH SHALL BE 892.18. THE CONTROL STRUCTURE SHOULD BE SET AT 895.0 TO CREATE ENOUGH HEAD TO GRAVITY DRAIN DECOLA POND C SOUTH.
5) PUMP AS NEEDED TO KEEP THE DECOLA PONDS B AND C AREAS BETWEEN THE BERMS FREE OF STANDING WATER FROM 9-15-2019 TO THE END OF THE EXCAVATION PERIOD.
6) INSTALL THE 5'-WIDE NOTCHED WEIR FOLLOWING COMPLETION OF THE DRAWDOWN PERIOD.

1 PLAN: DRAW DOWN PLAN - DECOLA PONDS B AND C
1"=40'-0"

N

0 40 80
SCALE IN FEET

50% DESIGN DRAFT

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

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PRINTED NAME _____

SIGNATURE _____

DATE _____ LICENSE # _____

	A	B	C	0	1	2	3
CLIENT							
BID							
CONSTRUCTION							
RELEASED TO/FOR							
DATE RELEASED							

BARR
Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277

city of golden valley

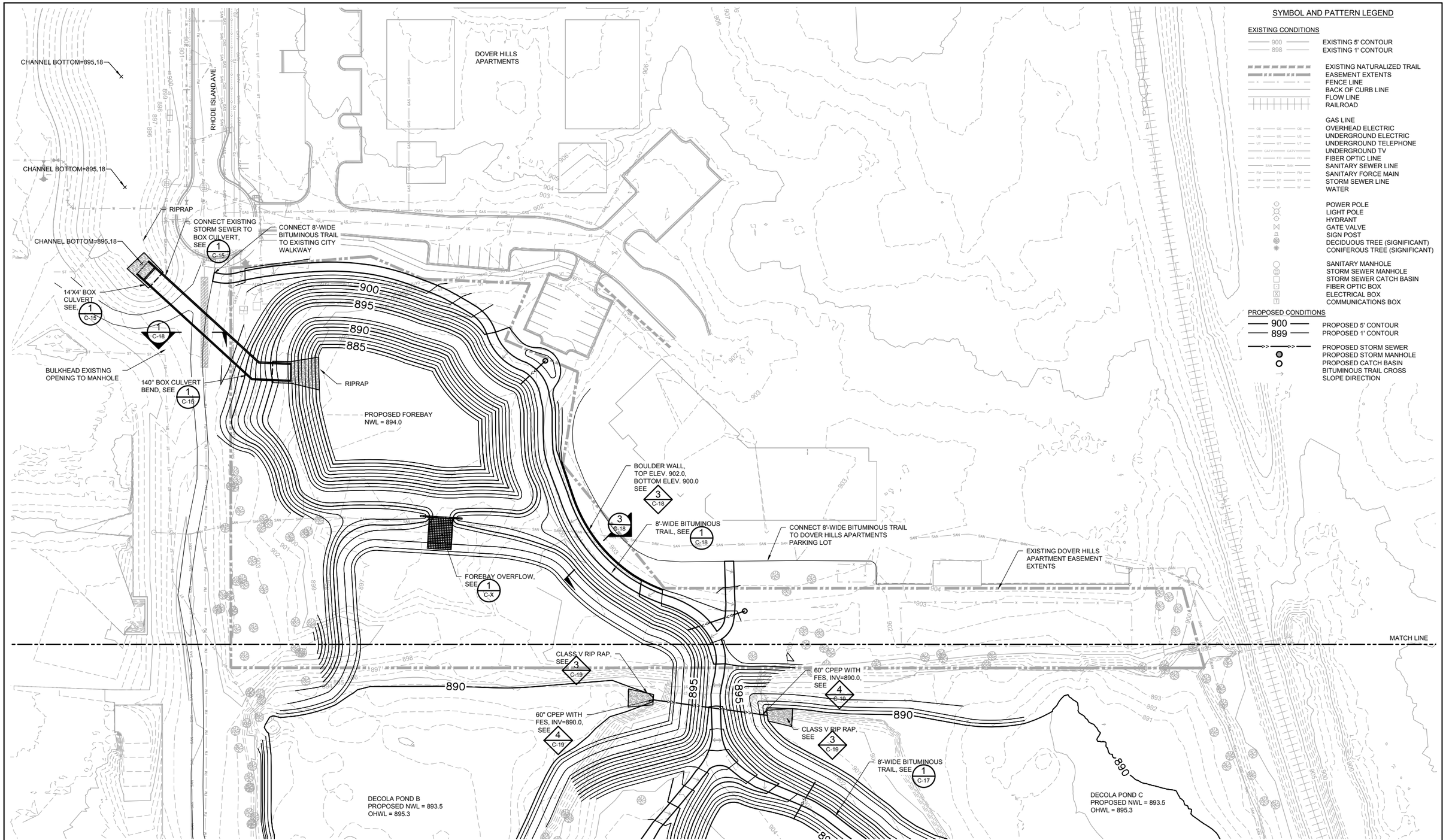
Scale	AS SHOWN
Date	01/29/2019
Drawn	KJN2
Checked	JAK2
Designed	JAK2
Approved	KAL

CITY OF GOLDEN VALLEY
GOLDEN VALLEY, MN

DECOLA PONDS B&C
IMPROVEMENT PROJECT

DRAW DOWN PLAN
DECOLA PONDS B & C

BARR PROJECT No.	23/27-1677.00
CLIENT PROJECT No.	#18-06
DWG. No.	C-10
REV. No.	A



1 - PLAN: PROPOSED CONDITIONS - DOVER HILLS APARTMENTS' EASEMENT AREA
1"=40'-0"

0 40 80
SCALE IN FEET

50% DESIGN DRAFT

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

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PRINTED NAME _____

SIGNATURE _____

DATE _____ LICENSE # _____

	A	B	C	0	1	2	3
CLIENT							
BID							
CONSTRUCTION							
RELEASED TO/FOR	DATE RELEASED						

BARR
Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277

city of golden valley

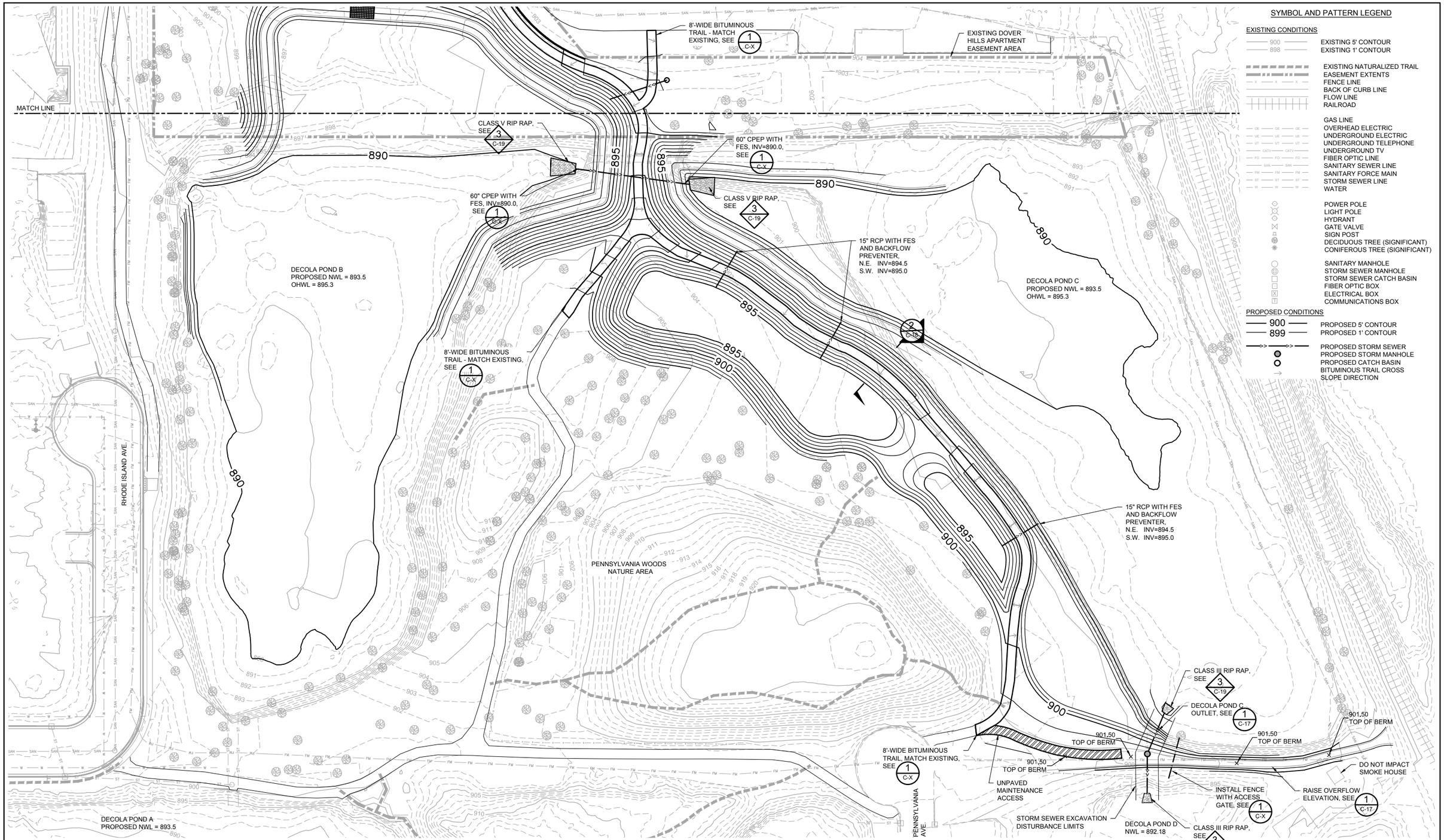
Scale	AS SHOWN
Date	01/29/2019
Drawn	KJN2
Checked	JAK2
Designed	JAK2
Approved	KAL

CITY OF GOLDEN VALLEY
GOLDEN VALLEY, MN

DECOLA PONDS B&C
IMPROVEMENT PROJECT

PROPOSED GRADING AND STORM SEWER
DOVER HILLS APARMENT EASEMENT AREA

BARR PROJECT No.	23/27-1677.00
CLIENT PROJECT No.	#18-06
DWG. No.	C-11
REV. No.	A



SYMBOL AND PATTERN LEGEND

EXISTING CONDITIONS

- 900 / 898 — EXISTING 5' CONTOUR / EXISTING 1' CONTOUR
- EXISTING NATURALIZED TRAIL
- EASEMENT EXTENTS
- FENCE LINE
- BACK OF CURB LINE
- FLOW LINE
- RAILROAD
- GAS LINE
- OVERHEAD ELECTRIC
- UNDERGROUND ELECTRIC
- UNDERGROUND TELEPHONE
- UNDERGROUND TV
- FIBER OPTIC LINE
- SANITARY SEWER LINE
- SANITARY FORCE MAIN
- STORM SEWER LINE
- WATER
- POWER POLE
- LIGHT POLE
- HYDRANT
- GATE VALVE
- SIGN POST
- DECIDUOUS TREE (SIGNIFICANT)
- CONIFEROUS TREE (SIGNIFICANT)
- SANITARY MANHOLE
- STORM SEWER MANHOLE
- STORM SEWER CATCH BASIN
- FIBER OPTIC BOX
- ELECTRICAL BOX
- COMMUNICATIONS BOX

PROPOSED CONDITIONS

- 900 / 899 — PROPOSED 5' CONTOUR / PROPOSED 1' CONTOUR
- PROPOSED STORM SEWER
- PROPOSED STORM MANHOLE
- PROPOSED CATCH BASIN
- BITUMINOUS TRAIL CROSS SLOPE DIRECTION

1 - PLAN: PROPOSED CONDITIONS - DECOLA PONDS B AND C
1"=40'-0"

N

0 40 80
SCALE IN FEET

50% DESIGN DRAFT

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DATE _____ LICENSE # _____

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CLIENT							
BID							
CONSTRUCTION							
RELEASED TO/FOR	DATE RELEASED						

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city of golden valley

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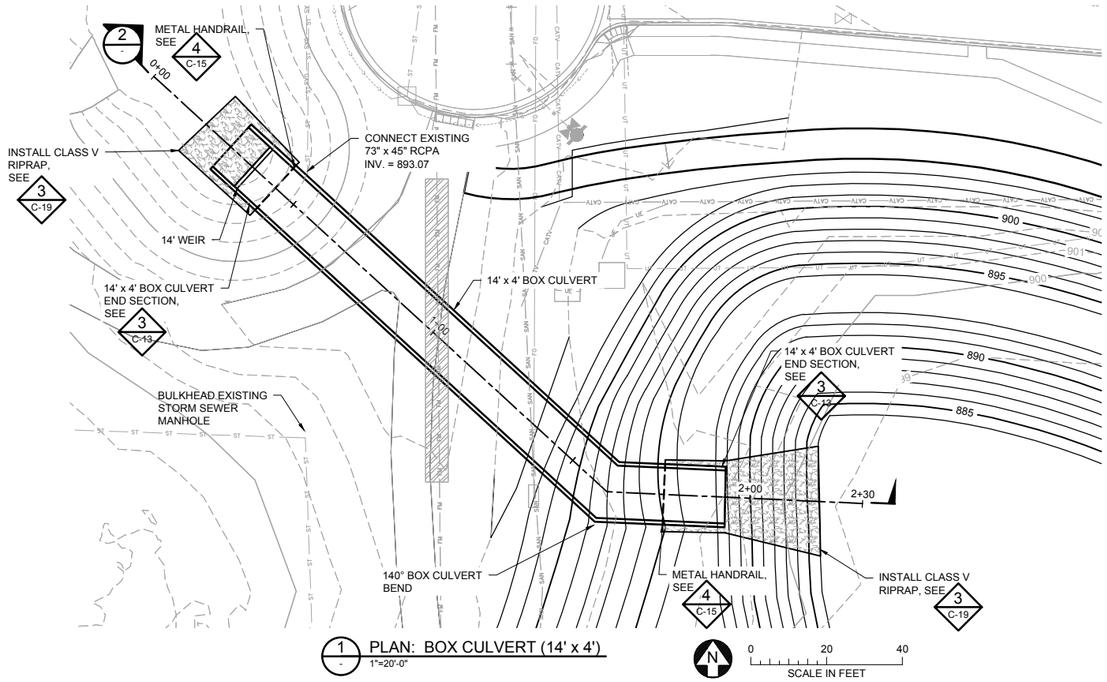
Date	01/29/2019
Drawn	KJN2
Checked	JAK2
Designed	JAK2
Approved	KAL

CITY OF GOLDEN VALLEY
GOLDEN VALLEY, MN

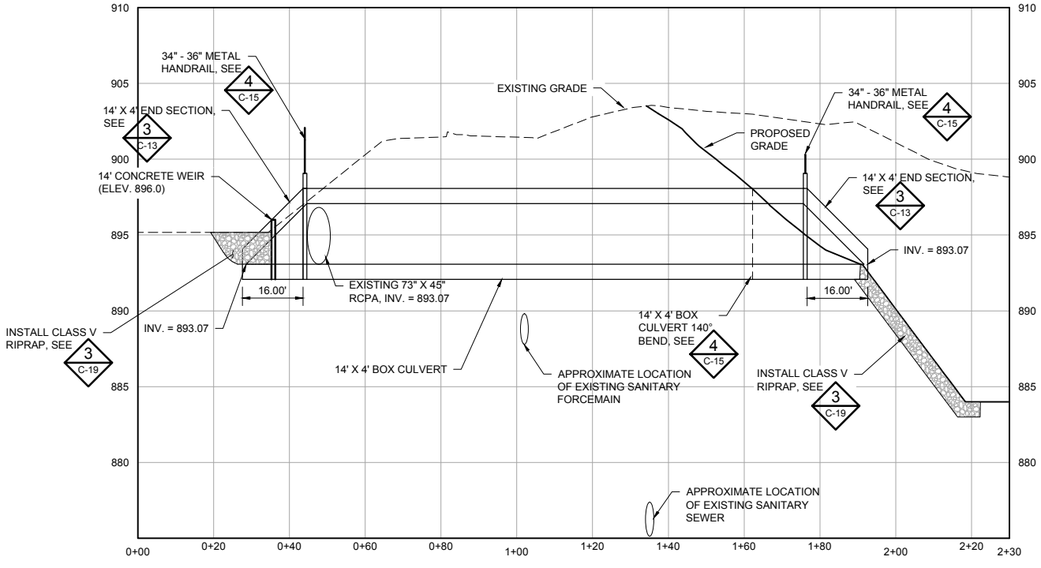
DECOLA PONDS B&C
IMPROVEMENT PROJECT

PROPOSED GRADING AND STORM SEWER
DECOLA PONDS B & C

BARR PROJECT No.	
23/27-1677.00	
CLIENT PROJECT No.	
#18-06	
DWG. No.	REV. No.
C-12	A



1 - PLAN: BOX CULVERT (14' x 4')
1"=20'-0"

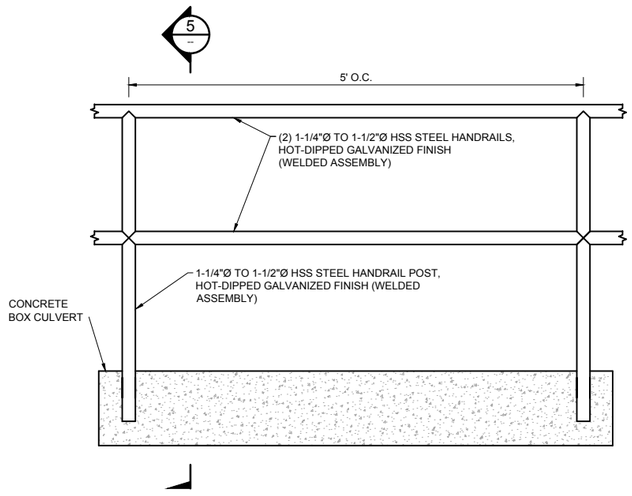


2 - PROFILE: BOX CULVERT (14' x 4')
1"=20'-0"

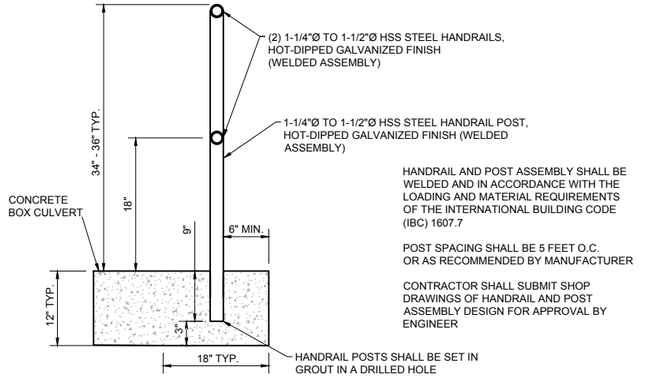
0 20 40
HORIZONTAL SCALE IN FEET

0 5 10
VERTICAL SCALE IN FEET

3 - DETAIL: BOX CULVERT END SECTION AND CONCRETE WEIR
NOT TO SCALE



4 - DETAIL: METAL HANDRAIL, SUPPORT POSTS
NOT TO SCALE



5 - CROSS SECTION: METAL HANDRAIL WITH THICKENED SIDEWALK
NOT TO SCALE

50% DESIGN
DRAFT

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

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DATE RELEASED

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Ph: 1-800-632-2277

city of golden valley

Scale	AS SHOWN
Date	01/29/2019
Drawn	KJN2
Checked	JAK2
Designed	JAK2
Approved	KAL

CITY OF GOLDEN VALLEY
GOLDEN VALLEY, MN

DECOLA PONDS B&C
IMPROVEMENT PROJECT

BOX CULVERT
PLAN AND PROFILE

BARR PROJECT No.	23/27-1677.00
CLIENT PROJECT No.	#18-06
DWG. No.	C-15
REV. No.	A

SYMBOL AND PATTERN LEGEND

EXISTING CONDITIONS

- 900 — EXISTING 5' CONTOUR
- 898 — EXISTING 1' CONTOUR
- EXISTING NATURALIZED TRAIL
- EASEMENT EXTENTS
- FENCE LINE
- BACK OF CURB LINE
- FLOW LINE
- RAILROAD
- GAS LINE
- OVERHEAD ELECTRIC
- UNDERGROUND ELECTRIC
- UNDERGROUND TELEPHONE
- UNDERGROUND TV
- FIBER OPTIC LINE
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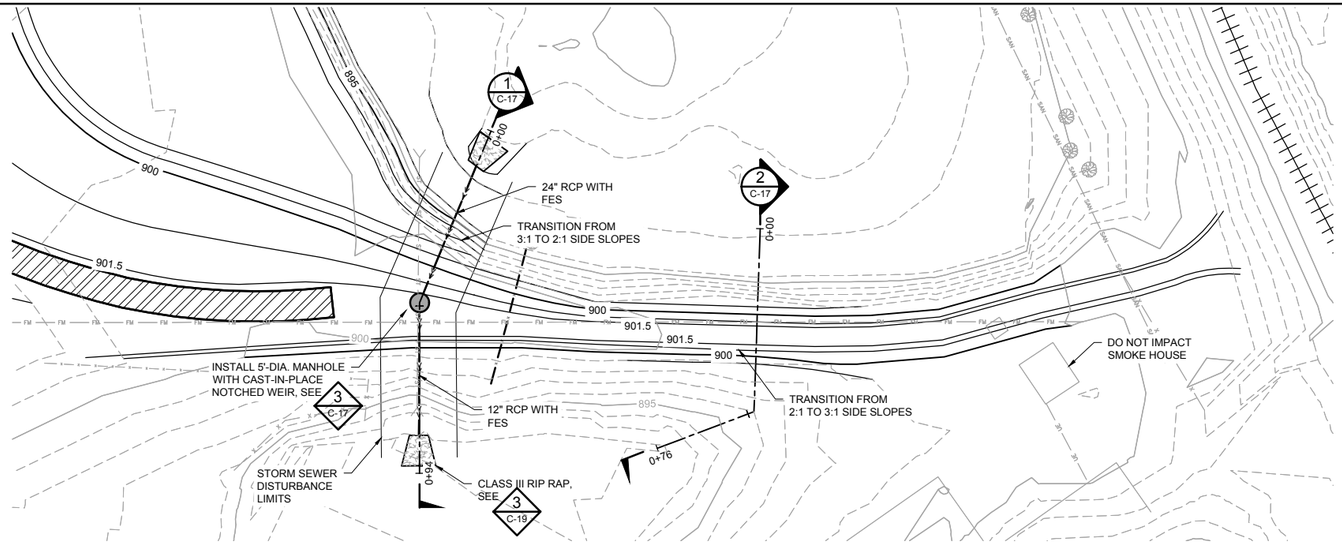
- POWER POLE
- LIGHT POLE
- HYDRANT
- GATE VALVE
- SIGN POST
- DECIDUOUS TREE
- CONIFEROUS TREE
- SANITARY MANHOLE
- STORM SEWER MANHOLE
- STORM SEWER CATCH BASIN
- FIBER OPTIC BOX
- ELECTRICAL BOX
- COMMUNICATIONS BOX

PROPOSED CONDITIONS

- 900 — PROPOSED 5' CONTOUR
- 898 — PROPOSED 1' CONTOUR
- PROPOSED STORM SEWER
- PROPOSED STORM MANHOLE

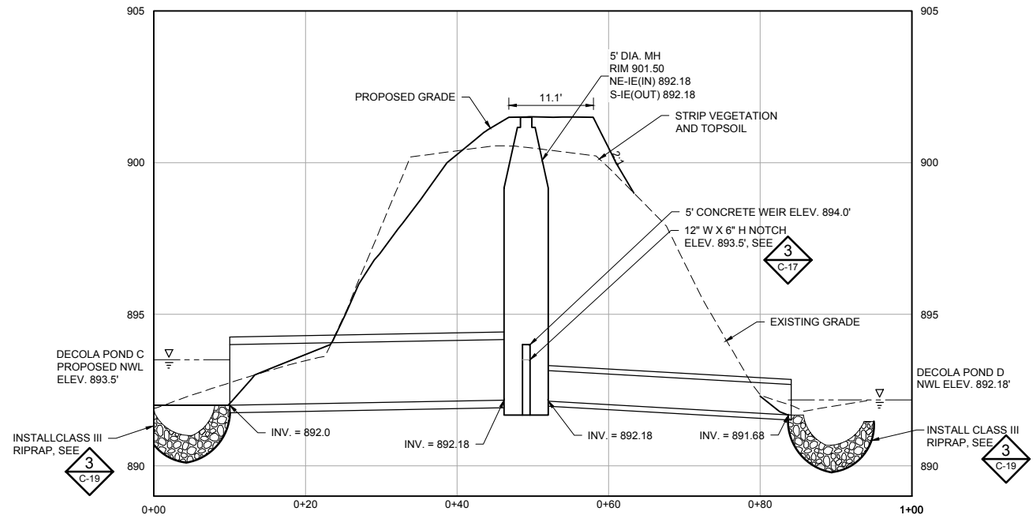


1 - PLAN: DECOLA POND C OUTLET AND OVERFLOW BERM
1"=20'-0"

N

0 20 40
SCALE IN FEET

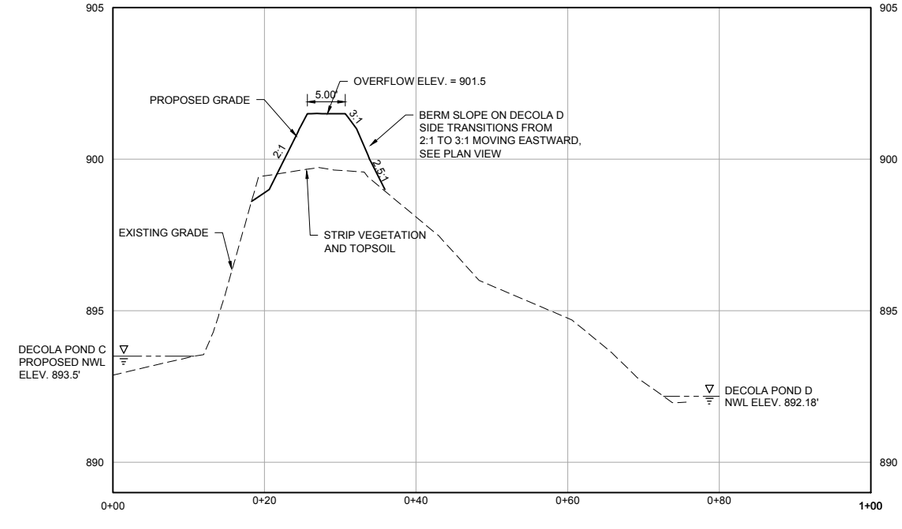
3 -- DETAIL: CAST-IN-PLACE NOTCHED WEIR
1"=1'-0"



1 - SECTION: DECOLA C OUTLET

0 10 20
HORIZONTAL SCALE IN FEET

0 2.5 5
VERTICAL SCALE IN FEET



2 - SECTION: DECOLA C OVERFLOW BERM

0 10 20
HORIZONTAL SCALE IN FEET

0 2.5 5
VERTICAL SCALE IN FEET

50% DESIGN DRAFT

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

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PRINTED NAME _____

SIGNATURE _____

DATE _____ LICENSE # _____

RELEASED TO/FOR	A	B	C	0	1	2	3
CLIENT							
BID							
CONSTRUCTION							
DATE RELEASED							

BARR
Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277

city of golden valley

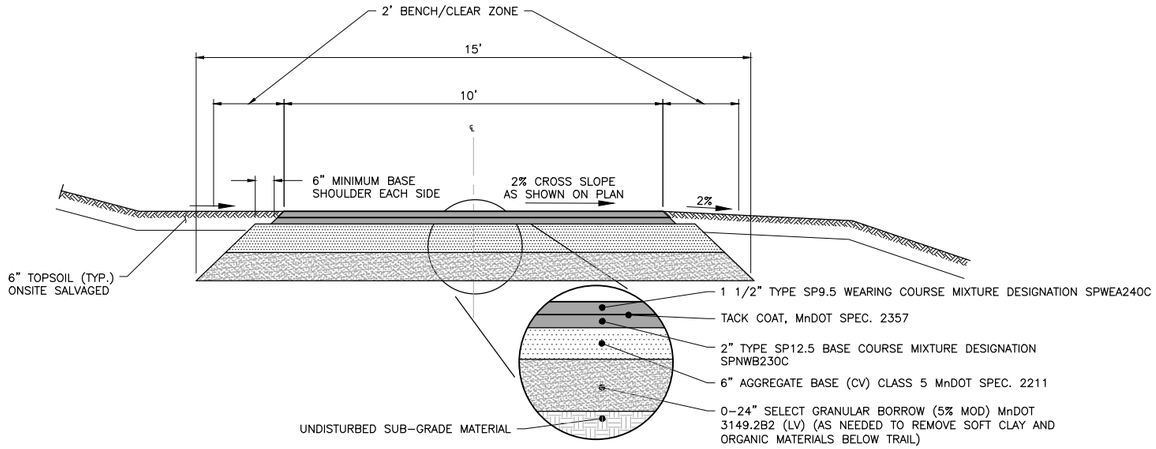
Scale	AS SHOWN
Date	1/29/2019
Drawn	KJN2
Checked	JAK2
Designed	JAK2
Approved	KAL

CITY OF GOLDEN VALLEY
GOLDEN VALLEY, MN

DECOLA PONDS B&C
IMPROVEMENT PROJECT

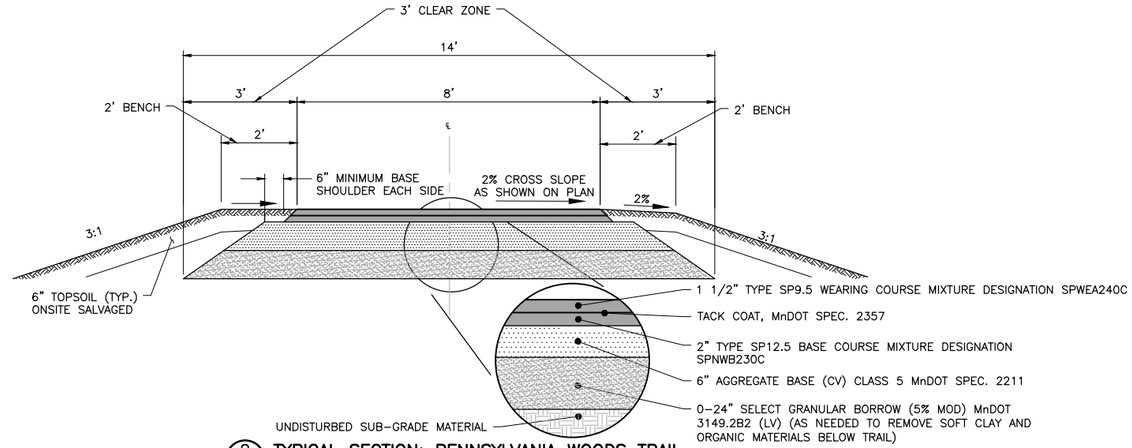
PLAN AND SECTION
DECOLA POND C OUTLET AND OVERFLOW

BARR PROJECT No.	
23/27-1677.00	
CLIENT PROJECT No.	
#18-06	
DWG. No.	REV. No.
C-17	A



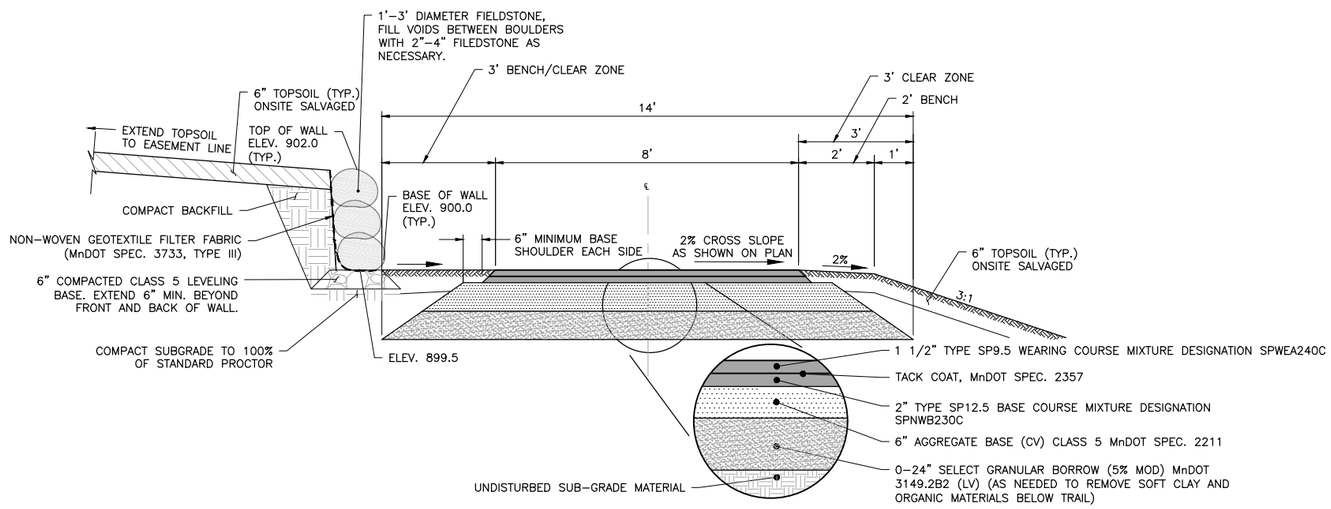
1 – **TYPICAL SECTION: LIBERTY CROSSING TRAIL REPLACEMENT**
NOT TO SCALE

NOTE A: COMPACT ALL AGGREGATE BASE AND SELECT GRANULAR TO 100% STANDARD PROCTOR



2 – **TYPICAL SECTION: PENNSYLVANIA WOODS TRAIL**
NOT TO SCALE

NOTE A: COMPACT ALL AGGREGATE BASE AND SELECT GRANULAR TO 100% STANDARD PROCTOR



3 – **TYPICAL SECTION: FOREBAY BOULDER RETAINING WALL & TRAIL**
NOT TO SCALE

NOTE A: COMPACT ALL AGGREGATE BASE AND SELECT GRANULAR TO 100% STANDARD PROCTOR

50% DESIGN DRAFT

CADD USER: Katie J. Turpin-Nagel FILE: M:\DESIGN\23271677.00\23271677700_C-18_DETAILS.DWG PLOT SCALE: 1:2 PLOT DATE: 1/29/2019 9:37 AM

NO.	BY	CHK	APP.	DATE	REVISION DESCRIPTION

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINTED NAME KURT A. LEUTHOLD

SIGNATURE

DATE _____ LICENSE # _____

	A	B	C	0	1	2	3
CLIENT							
BID							
CONSTRUCTION							
RELEASED TO/FOR	DATE RELEASED						

BARR
Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277

city of golden valley

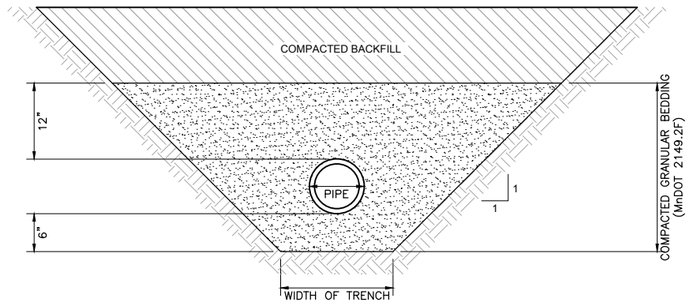
Scale	
Date	01/29/2019
Drawn	KJN2
Checked	JAK2
Designed	JAK2
Approved	KAL

CITY OF GOLDEN VALLEY
GOLDEN VALLEY, MN

DECOLA PONDS B&C
IMPROVEMENT PROJECT

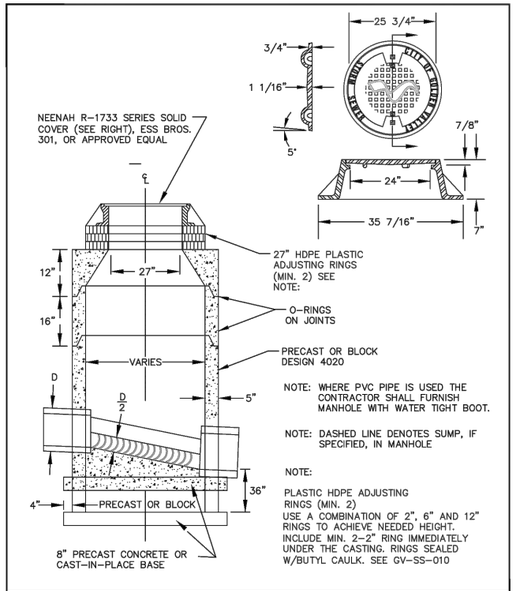
DETAILS

BARR PROJECT No.	23/27-1677.00
CLIENT PROJECT No.	#18-06
DWG. No.	C-18
REV. No.	A



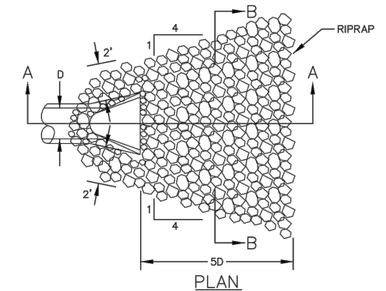
1. USE FOR STORM SEWER AND SANITARY SEWER AS DIRECTED BY ENGINEER.
2. CONTRACTOR SHALL CONSTRUCT TRENCH AND PROVIDE PROTECTIVE MEASURES AS REQUIRED TO COMPLY WITH OSHA REGULATIONS.
3. COMPACTION OF BACKFILL AND BEDDING MATERIALS SHALL BE IN ACCORDANCE WITH MN/DOT SPECIFICATION 2105.3F1.

1 – DETAIL: PIPE BEDDING FOR UTILITIES
NOT TO SCALE



APPROVED JANUARY 1, 2018 CITY ENGINEER REG 23110	STANDARD STORM SEWER MANHOLE DES 4020 WITH CASTING & COVER	Golden Valley GV-ST-010

2 – DETAIL: STANDARD STORM SEWER MANHOLE WITH CASTING COVER
NOT TO SCALE



NOTE:

FOR EXACT RIPRAP QUANTITES REFER TO MNDOT STANDARD PLATES M3133B, 3133C, AND 3134C.

GRANULAR FILTER BLANKET OR GEOTEXTILE FABRIC, TYPE IV (MNDOT SPEC. 3733) REQUIRED UNDER RIPRAP.

APPROVED DECEMBER 31, 2015 CITY ENGINEER REG 23110	RIPRAP AT OUTLETS	Golden Valley GV-EC-070

3 – DETAIL: RIPRAP AT OUTLETS
NOT TO SCALE

CORRUGATED POLYETHYLENE PIPE (AASHTO M294)

NOMINAL PIPE DIAMETER (INCHES)	MAXIMUM COVER (FEET)	TRENCH WIDTH (COVER ≤ 10 FT.) (INCHES)	TRENCH WIDTH (COVER ≥ 10 FT.) (INCHES)
12"	20'	50"	50"
15"	20'	54"	54"
18"	15'	58"	64"
24"	15'	64"	86"
30"	15'	72"	110"
36"	15'	78"	128"
42"	10'	84"	
48"	10'	92"	

APPROVED JANUARY 1, 2018 CITY ENGINEER REG 23110	INSTALLATION OF CORRUGATED POLYETHYLENE PIPE	Golden Valley GV-ST-090

4 – DETAIL: INSTALLATION OF CORRUGATED POLYETHYLENE PIPE
NOT TO SCALE

50% DESIGN DRAFT

CADD USER: Katie J. Turpin-Nagel FILE: M:\DESIGN\23271677.00\23271677700_C-18_DETAILS.DWG PLOT SCALE: 1:2 PLOT DATE: 1/29/2019 9:38 AM

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

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PRINTED NAME KURT A. LEUTHOLD
SIGNATURE
DATE LICENSE #

CLIENT								
BID								
CONSTRUCTION								
RELEASED TO/FOR	A	B	C	0	1	2	3	
	DATE RELEASED							

BARR
Corporate Headquarters: Minneapolis, Minnesota
Ph: 1-800-632-2277

city of golden valley

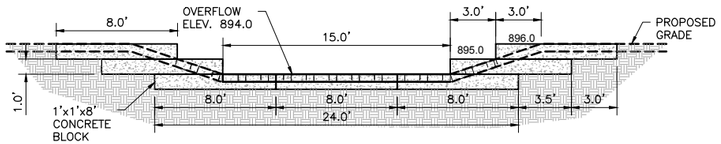
Scale	
Date	01/29/2019
Drawn	KJN2
Checked	JAK2
Designed	JAK2
Approved	KAL

CITY OF GOLDEN VALLEY
GOLDEN VALLEY, MN

DECOLA PONDS B&C
IMPROVEMENT PROJECT

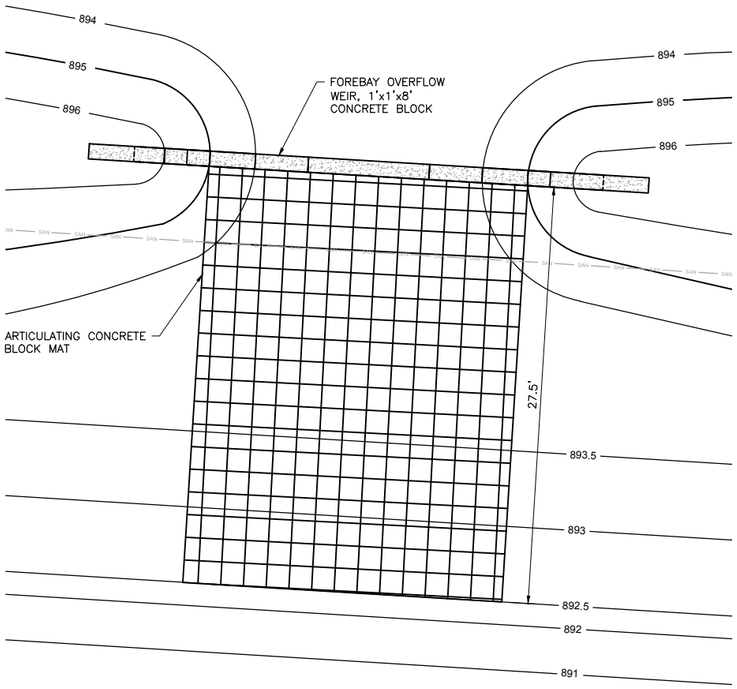
DETAILS

BARR PROJECT No.	23/27-1677.00
CLIENT PROJECT No.	#18-06
DWG. No.	C-19
REV. No.	A



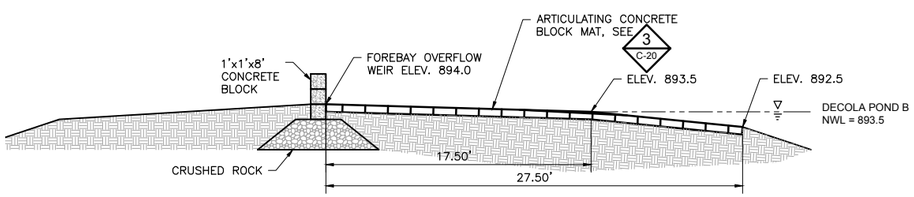
1 - DETAIL: FOREBAY OVERFLOW WEIR - FRONT VIEW
1"=5'-0"

0 5 10
SCALE IN FEET



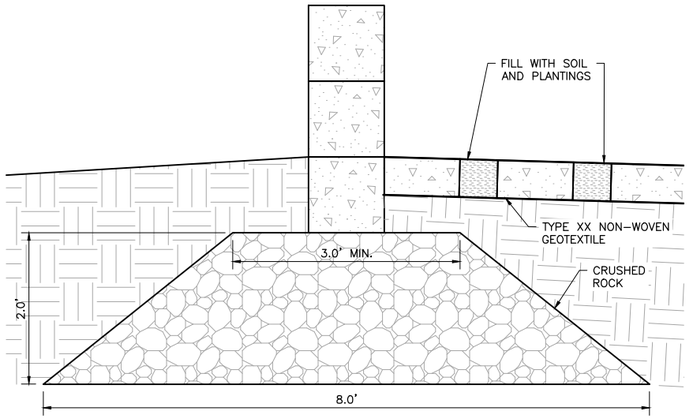
2 - DETAIL: FOREBAY OVERFLOW WEIR - TOP VIEW
1"=5'-0"

0 5 10
SCALE IN FEET



3 - DETAIL: FOREBAY OVERFLOW WEIR - SIDE VIEW
1"=5'-0"

0 5 10
SCALE IN FEET



4 - DETAIL: OVERFLOW WEIR AND ARTICULATING CONCRETE BLOCK MAT
1"=1'-0"

50% DESIGN
DRAFT

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

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PRINTED NAME KURT A. LEUTHOLD

SIGNATURE

DATE LICENSE #

	A	B	C	0	1	2	3
CLIENT							
BID							
CONSTRUCTION							
RELEASED TO/FOR	DATE RELEASED						

BARR
Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277

city of golden valley

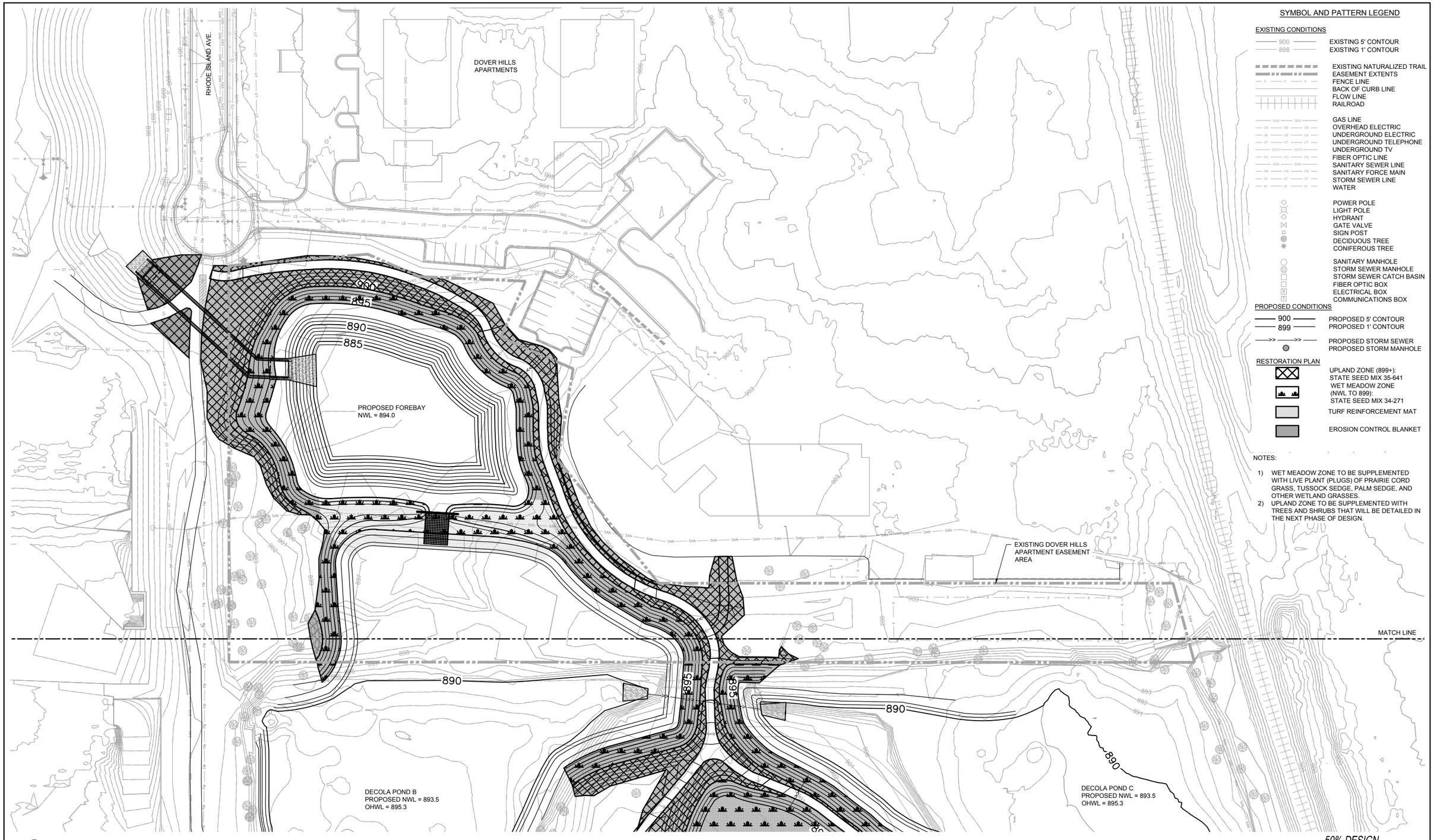
Scale	
Date	01/29/2019
Drawn	KJN2
Checked	JAK2
Designed	JAK2
Approved	KAL

CITY OF GOLDEN VALLEY
GOLDEN VALLEY, MN

DECOLA PONDS B&C
IMPROVEMENT PROJECT

DETAILS

BARR PROJECT No.	23/27-1677.00
CLIENT PROJECT No.	#18-06
DWG. No.	C-20
REV. No.	A



SYMBOL AND PATTERN LEGEND

EXISTING CONDITIONS

- 900 — EXISTING 5' CONTOUR
- 898 — EXISTING 1' CONTOUR
- EXISTING NATURALIZED TRAIL
- EASEMENT EXTENTS
- FENCE LINE
- BACK OF CURB LINE
- FLOW LINE
- RAILROAD
- GAS LINE
- OVERHEAD ELECTRIC
- UNDERGROUND ELECTRIC
- UNDERGROUND TELEPHONE
- UNDERGROUND TV
- FIBER OPTIC LINE
- SANITARY SEWER LINE
- SANITARY FORCE MAIN
- STORM SEWER LINE
- WATER
- POWER POLE
- LIGHT POLE
- HYDRANT
- GATE VALVE
- SIGN POST
- DECIDUOUS TREE
- CONIFEROUS TREE
- SANITARY MANHOLE
- STORM SEWER MANHOLE
- STORM SEWER CATCH BASIN
- FIBER OPTIC BOX
- ELECTRICAL BOX
- COMMUNICATIONS BOX

PROPOSED CONDITIONS

- 900 — PROPOSED 5' CONTOUR
- 899 — PROPOSED 1' CONTOUR
- PROPOSED STORM SEWER
- PROPOSED STORM MANHOLE

RESTORATION PLAN

- UPLAND ZONE (899+): STATE SEED MIX 35-641
- WET MEADOW ZONE (NWL TO 899): STATE SEED MIX 34-271
- TURF REINFORCEMENT MAT
- EROSION CONTROL BLANKET

NOTES:

1) WET MEADOW ZONE TO BE SUPPLEMENTED WITH LIVE PLANT (PLUGS) OF PRAIRIE CORD GRASS, TUSSOCK SEDGE, PALM SEDGE, AND OTHER WETLAND GRASSES.
2) UPLAND ZONE TO BE SUPPLEMENTED WITH TREES AND SHRUBS THAT WILL BE DETAILED IN THE NEXT PHASE OF DESIGN.

1 — PLAN: RESTORATION - DOVER HILLS APARTMENTS' EASEMENT AREA
1"=40'-0"

N

0 40 80
SCALE IN FEET

50% DESIGN DRAFT

CADD USER: Katie J. Turpin-Nagel FILE: M:\DESIGN\23271677.00\23271677.00_L-01_RESTORATIONPLAN_FOREBAYLIBERTY.DWG PLOT SCALE: 1:2 PLOT DATE: 1/29/2019 9:27 AM

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

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PRINTED NAME _____

SIGNATURE _____

DATE _____ LICENSE # _____

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CLIENT							
BID							
CONSTRUCTION							
RELEASED TO/FOR	DATE RELEASED						

BARR
Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277

city of golden valley

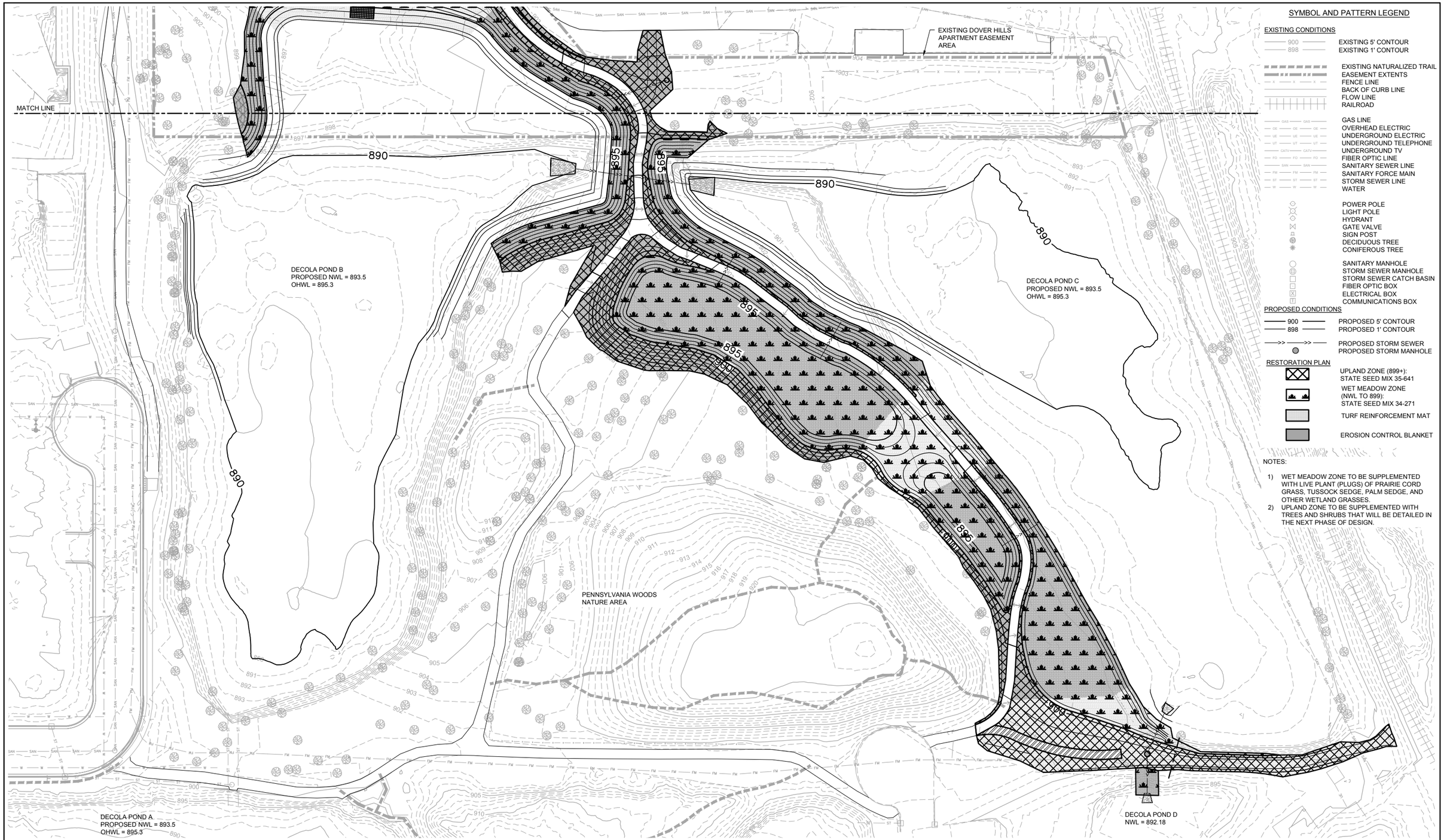
Scale	AS SHOWN
Date	01/29/2019
Drawn	KJN2
Checked	JAK2
Designed	FJR
Approved	KAL

CITY OF GOLDEN VALLEY
GOLDEN VALLEY, MN

DECOLA PONDS B&C
IMPROVEMENT PROJECT

RESTORATION AND LANDSCAPE PLAN
DOVER HILLS APARMENT EASEMENT AREA

BARR PROJECT No.	
23/27-1677.00	
CLIENT PROJECT No.	
#18-06	
DWG. No.	REV. No.
L-01	A



SYMBOL AND PATTERN LEGEND

EXISTING CONDITIONS

- 900 — EXISTING 5' CONTOUR
- 898 — EXISTING 1' CONTOUR
- EXISTING NATURALIZED TRAIL
- EASEMENT EXTENTS
- FENCE LINE
- BACK OF CURB LINE
- FLOW LINE
- RAILROAD
- GAS LINE
- OVERHEAD ELECTRIC
- UNDERGROUND ELECTRIC
- UNDERGROUND TELEPHONE
- UNDERGROUND TV
- FIBER OPTIC LINE
- SANITARY SEWER LINE
- SANITARY FORCE MAIN
- STORM SEWER LINE
- WATER
- POWER POLE
- LIGHT POLE
- HYDRANT
- GATE VALVE
- SIGN POST
- DECIDUOUS TREE
- CONIFEROUS TREE
- SANITARY MANHOLE
- STORM SEWER MANHOLE
- STORM SEWER CATCH BASIN
- FIBER OPTIC BOX
- ELECTRICAL BOX
- COMMUNICATIONS BOX

PROPOSED CONDITIONS

- 900 — PROPOSED 5' CONTOUR
- 898 — PROPOSED 1' CONTOUR
- PROPOSED STORM SEWER
- PROPOSED STORM MANHOLE

RESTORATION PLAN

- UPLAND ZONE (899+): STATE SEED MIX 35-641
- WET MEADOW ZONE (NWL TO 899): STATE SEED MIX 34-271
- TURF REINFORCEMENT MAT
- EROSION CONTROL BLANKET

NOTES:

1) WET MEADOW ZONE TO BE SUPPLEMENTED WITH LIVE PLANT (PLUGS) OF PRAIRIE CORD GRASS, TUSSOCK SEDGE, PALM SEDGE, AND OTHER WETLAND GRASSES.
2) UPLAND ZONE TO BE SUPPLEMENTED WITH TREES AND SHRUBS THAT WILL BE DETAILED IN THE NEXT PHASE OF DESIGN.

1 PLAN: RESTORATION - DECOLA PONDS B AND C
1"=40'-0"

0 40 80
SCALE IN FEET

50% DESIGN DRAFT

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

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DATE RELEASED: A | B | C | 0 | 1 | 2 | 3

BARR
Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277

city of golden valley

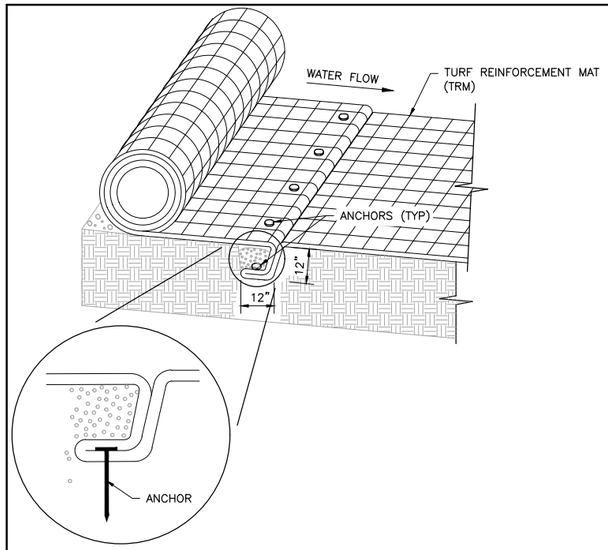
Scale	AS SHOWN
Date	01/29/2019
Drawn	KJN2
Checked	JAK2
Designed	FJR
Approved	KAL

CITY OF GOLDEN VALLEY
GOLDEN VALLEY, MN

DECOLA PONDS B&C
IMPROVEMENT PROJECT

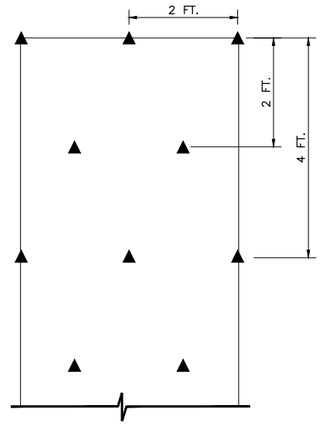
RESTORATION AND LANDSCAPE PLAN
DECOLA PONDS B & C

BARR PROJECT No.	23/27-1677.00
CLIENT PROJECT No.	#18-06
DWG. No.	L-02
REV. No.	A



CHECK SLOT NOTES:
1. SECURE AT 12 IN. INTERVALS, BACKFILL AND COMPACT SOIL.
2. CHECK SLOTS TO BE PLACE EVERY 25' ALONG FLOW LINE.

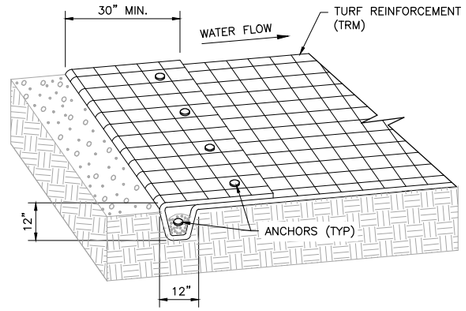
INTERMITTENT CHECK SLOT



ANCHOR NOTES:
1. PLACE ANCHORS ACCORDING TO THE ABOVE PATTERN.
2. OVERLAP BETWEEN ROLLS IS 6 IN. MINIMUM.
3. SPLICE BETWEEN ROLLS IS 18 IN. MINIMUM
4. ALWAYS INSTALL DOUBLE ROW OF PINS SPACED 12" APART AT ALL ROLL SPLICES.
5. INSTALL PINS DOWN THE CENTER OF EACH MAT STAGGERING THE OUTSIDE PINS.
6. ANCHORS SHALL BE AT MINIMUM 12 IN. STEEL NAILS WITH 1–1/2 IN. WASHERS OR 12 IN. U–SHAPED WIRE STAPLES. LONGER ANCHORS MAY BE REQUIRED FOR LOOSE SOILS. ANCHORS MUST PROVIDE SUFFICIENT GROUND PENETRATION TO RESIST PULLOUT.

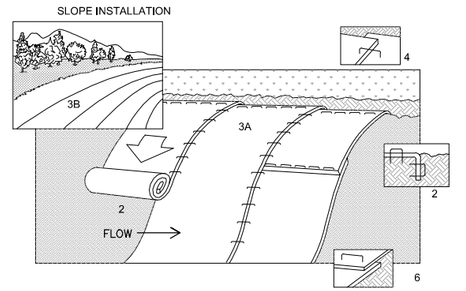
TRM ANCHOR PATTERN

TRM INSTALLATION NOTES:
1. PLACE A MINIMUM OF 4 IN. OF TOPSOIL ON EMERGENCY OVERFLOW CHANNEL.
2. PLACE APPROXIMATELY 50% OF THE SPECIFIED SEED AND RAKE SEED INTO SOIL PRIOR TO PLACEMENT OF TRM.
3. INSTALL AND ANCHOR TRM AS SHOWN AND AS SPECIFIED.
4. PLACE ADDITIONAL TOPSOIL (PULVERIZED, DRY, LOOSE) OVER TRM ROUGHLY 1 IN. THICK OR UNTIL THE TRM IS BARELY VISIBLE.
5. APPLY REMAINING 50% OF SEEDING ON TOP OF SOIL FILLED TRM AND LIGHTLY RAKE INTO SOIL USING THE FLAT SIDE OF A RAKE.
6. HYDROMULCH MAY BE SUBSTITUTED FOR THE APPROACH IN STEP 5.



ANCHOR TRENCH NOTES:
1. SECURE AT 12 IN. INTERVALS, BACKFILL AND COMPACT SOIL.
2. FOR SLOPES, CONSTRUCT TOP ANCHOR TRENCH 2 FT. BEYOND CREST OF SLOPE.

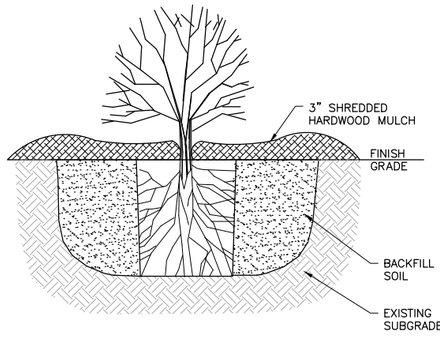
TOP ANCHOR TRENCH



NOTES:
1. REFER TO MANUFACTURER RECOMMENDATIONS FOR STAPLE PATTERNS FOR SLOPE INSTALLATIONS.
2. PREPARE SOIL BY LOOSENING TOP 1-2 INCHES AND APPLY SEED (AND FERTILIZER WHERE REQUIRED) PRIOR TO INSTALLING BLANKETS. GROUND SHOULD BE SMOOTH AND FREE OF DEBRIS.
3. BEGIN (A) AT THE TOP OF THE SLOPE AND ROLL THE BLANKETS DOWN OR (B) AT ONE END OF THE SLOPE AND ROLL THE BLANKETS HORIZONTALLY ACROSS THE SLOPE.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 6" OVERLAP, WITH THE UPHILL BLANKET ON TOP.
5. WHEN BLANKETS MUST BE SPLICED DOWN THE SLOPE, PLACE BLANKETS END OVER END (SHINGLE STYLE) WITH APPROXIMATELY 6" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART.
6. BLANKET MATERIALS SHALL BE AS SPECIFIED OR AS APPROVED BY ENGINEER.

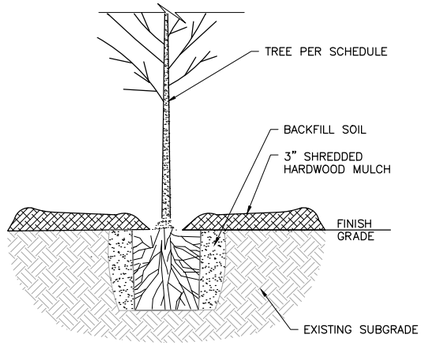
2 DETAIL: EROSION CONTROL BLANKET – INSTALLATION
NOT TO SCALE

1 DETAIL: TURF REINFORCEMENT MAT
NOT TO SCALE



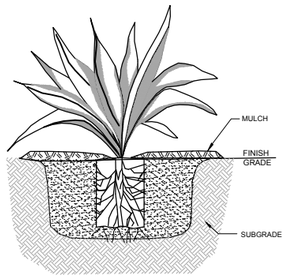
SHRUB PLANTING NOTES:
1. PROVIDE AND INSTALL PLANTS PER SCHEDULE.
2. REMOVE DEAD OR DAMAGED BRANCHES. RETAIN THE NATURAL FORM OF PLANT.
3. IF ROOT FLARE IS NOT EXPOSED WITHIN THE CONTAINER EXCAVATE SURFACE SOIL TO BASE OF ROOT FLARE.
4. DIG PLANT HOLES 6" MIN. LARGER THAN ROOT MASS, ALL SIDES.
5. SET SHRUB ON LIGHTLY FIRMED BACKFILL SOIL SO ROOT FLARE IS EVEN WITH FINISH GRADE.
6. PLACE SHREDDED HARDWOOD MULCH (MN/DOT SPEC 3882.2 TYPE 6 - WEED SEED FREE SHREDDED HARDWOOD.) TO A RADIUS OF 24" AND TO A DEPTH OF 3" AROUND PLANT.
7. NO MULCH TO BE IN CONTACT WITH PLANT.

3 DETAIL: SHRUB AND VINE PLANTING
NOT TO SCALE



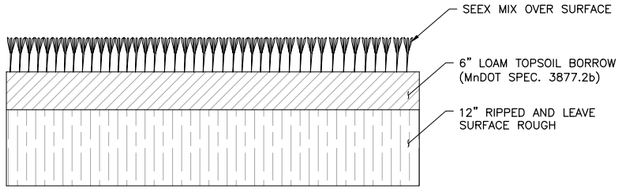
TREE PLANTING NOTES:
1. PROVIDE AND INSTALL PLANTS PER SCHEDULE.
2. REMOVE DEAD OR DAMAGED BRANCHES. RETAIN THE NATURAL FORM OF PLANT. DO NOT CUT THE LEADER
3. IF ROOT FLARE IS NOT EXPOSED WITHIN THE CONTAINER EXCAVATE SURFACE SOIL TO BASE OF ROOT FLARE.
4. DIG PLANT HOLES 6" MIN. LARGER THAN ROOT MASS, ALL SIDES.
5. SCARIFY BOTTOM AND SIDES OF HOLE PRIOR TO PLANTING
6. SET TREE ON LIGHTLY FIRMED BACKFILL SOIL SO ROOT FLARE IS EVEN WITH FINISH GRADE.
7. REMOVE BURLAP AND ROPES FROM TOP 1/3 OF ROOT BALLS, CUT WIRE BASKET DOWN TO SECIND HORIZONTAL WIRE FROM BOTTOM, AND DISPOSE OF OFF-SITE.
8. BACKFILL WITH PLANTING SOIL AND FIRM SOIL AROUND ROOT MASS TO MAINTAIN PLUMB AND ENSURE NO AIR GAPS AROUND ROOT MASS.
9. CONSTRUCT 3" WATERING BASIN. THOROUGHLY WATER WITHIN 3 HOURS OF INSTALLATION.
10. PLACE SHREDDED HARDWOOD MULCH (MN/DOT SPEC 3882.2 TYPE 6 - WEED SEED FREE SHREDDED HARDWOOD.) TO A RADIUS OF 24" AND TO A DEPTH OF 3" AROUND TREE (SOIL PREPARED AS PER PLAN).
11. NO MULCH TO BE IN CONTACT WITH BASE OF PLANT.
12. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING TREES IN A PLUMB POSITION THROUGHOUT THE WARRANTY PERIOD.

4 DETAIL: TREE PLANTING
NOT TO SCALE



HERBACEOUS PLUG PLANTING NOTES:
1. PREPARE SOIL WITH COMPOST AMENDMENT PER PLAN
2. PROVIDE AND INSTALL PLANTS PER SCHEDULE.
3. EXCAVATE HOLE 3 TIMES WIDTH OF ROOTBALL.
4. BREAK BOTTOM OF ROOTBALL TO LOOSEN ROOTS.
5. PLANT THROUGH MULCH ALIGNING ROOTBALL TOP EVEN WITH SOIL - DO NOT PLANT TOO DEEP OR TOO SHALLOW. FIRM SOIL TO ENSURE GOOD CONTACT WITH ROOTS.
6. APPLY 3" DEPTH SHREDDED HARDWOOD MULCH TO ENTIRE PLANTING AREA (SOIL PREPARED AS PER SPECIFICATIONS).
7. NO MULCH TO BE IN CONTACT WITH PLANT.
8. WATER THOROUGHLY AFTER PLANTING.
9. HERBACEOUS PLANTS SHALL BE GUARANTEED FOR 60 DAYS FROM TIME OF OWNER ACCEPTANCE. CONTRACTOR TO WATER AS NECESSARY TO MAINTAIN IN A HEALTHY CONDITION. AT THE END OF THIS PERIOD ANY DEAD PLANTS SHALL BE REPLACED AT CONTRACTOR'S EXPENSE.

5 DETAIL: HERBACEOUS PLUG
NOT TO SCALE



NOTE: SEE SHEETS C–11, C–12, AND C–13 FOR SEED MIXES AND TOPSOIL EXTENTS

6 DETAIL: SOIL PREP
NOT TO SCALE

50% DESIGN DRAFT

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINTED NAME KURT A. LEUTHOLD
SIGNATURE
DATE LICENSE #

CLIENT							
BID							
CONSTRUCTION							
RELEASED TO/FOR	A	B	C	0	1	2	3
	DATE RELEASED						

BARR
Corporate Headquarters:
Minneapolis, Minnesota
Ph: 1-800-632-2277

city of golden valley

Scale	
Date	12/06/2018
Drawn	KJN2
Checked	JAK2
Designed	JAK2
Approved	KAL

CITY OF GOLDEN VALLEY
GOLDEN VALLEY, MN

DECOLA PONDS B&C
IMPROVEMENT PROJECT

DETAILS
RESTORATION

BARR PROJECT No.	23/27-1677.00
CLIENT PROJECT No.	#18-06
DWG. No.	L-03
REV. No.	A