

Agenda Item: 6.

MEMORANDUM

TO: Finance, Expenditure and Legal Subcommittee

FROM: Martin P. Cleveland

SUBJECT: Big Papio Levee Project (36th to Cornhusker Rd)
City of Bellevue Request for Permanent Easement for WATER
WISE Demonstration Best Management Project

DATE: March 27, 2013

The Big Papio Levee Project (36th to Cornhusker Rd) is located in Bellevue, Nebraska area, near the Twin Creek Development. The District acquired right-of-way for this project in 1990's in order to build the channel/levee improvements along the right bank of Big Papio Creek. Property was also acquired for the adjacent West Papio Trail Head parking lot, located immediately south of the creek and north of Culvers Restaurant (see enclosed map). The proposed City of Bellevue permanent easement is located on District property immediately south and adjacent to the Trail Head parking lot. Enclosed is a copy of the proposed permanent easement.

The City of Bellevue has requested that the District grant permanent easement to the City to allow the construction of the City's WATER WISE Demonstration Best Management Project (BMP) facilities in the District's right-of-way (ROW). See enclosed project plan map. The facilities to be located in the District ROW include two bioretention ponds, parking lot curb modifications, storm sewer inlet modifications and plantings. The ponds are intended to attenuate stormwater off of the trail parking lot and nearby commercial building sites and also improve water quality. Bellevue has acquired grant funding for the project from Nebraska Arboretum Association (NSA) and will do some of the grading work with Bellevue staff and equipment.

Management recommends that the Finance, Expenditure and Legal Subcommittee recommend to the Board of Directors that the General Manager be authorized to execute the proposed permanent easement to the City of Bellevue for their WATER WISE Demonstration Best Management Project, subject to changes deemed necessary by the General Manager and approval as to form by District Legal Counsel.



Imagery Date: 3/7/2012



1993

41°08'56.07" N 95°58'08.68" W elev 985 ft

Eye alt

2467 ft

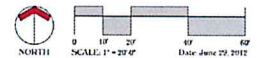




Concept Design

Bellevue WATERWISE Demonstration BMPs

Bellevue, Nebraska



Register of Deeds Use

**EASEMENT AGREEMENT
FOR OCCUPATION OF LEVEE/CHANNEL RIGHT-OF-WAY**

This Agreement is entered into by and between the PAPIO-MISSOURI RIVER NATURAL RESOURCES DISTRICT, a governmental subdivision of the State of Nebraska, with offices at 8901 South 154th Street, Omaha, Nebraska 68138-3621 (hereinafter called "the DISTRICT") and **CITY OF BELLEVUE** (hereinafter called "the GRANTEE," whether one or more and regardless of gender).

WHEREAS, the GRANTEE desires to install, operate, maintain and replace certain improvements, to-wit:

WATERWISE Demonstration Best Management Project

(hereafter called "the Construction") in that portion of the DISTRICT's levee/channel right-of-way in Douglas County, Nebraska, described as follows, to-wit:

.....(See attached Exhibit "A").....

(such portion of the DISTRICT's levee/channel right-of-way hereinafter being called "the Easement Area"); and,

WHEREAS, the DISTRICT is agreeable to grant a permanent easement for the Construction in accordance with the terms and conditions hereinafter set forth.

NOW, THEREFORE, in consideration of their mutual covenants herein expressed, the DISTRICT and the GRANTEE agree as follows:

1. The DISTRICT does hereby grant to the GRANTEE, and or its successors and assigns, the permanent easement and right to install, operate, maintain, repair and replace the construction, in, under and through the Easement Area, in accordance with the plans and specifications for the Construction dated January 3, 2013 and prepared by Big Muddy Workshop Inc.

2. The DISTRICT's levee and channel facilities, and appurtenances thereto, which are damaged or altered as a result of the installation, operation, maintenance, repair or replacement of the Construction, shall be properly and immediately restored by the GRANTEE to their "as built" condition. This shall include but not be limited to the following:

- a) excavations shall be backfilled with same or comparable material and compacted to a density at least equal to that of the adjacent levee,
- b) seeded areas which are disturbed shall be re-seeded and a vegetative cover acceptable to the DISTRICT shall be established,
- c) materials, pipe, debris and other construction materials shall be removed.
- d) a new three inch (3") thick by ten foot (10') wide crushed limestone (1 ½ inch crusher run) surfacing will be placed on all traveled unpaved portions of levee roadway, unless District waives this requirement at the project final inspection.

3. The GRANTEE agrees to pay the reasonable cost of all repairs of damages or rectification of alterations to the DISTRICT's levee and channel facilities necessitated or caused by or arising out of the installation, operation, maintenance, repair or replacement of the Construction, or the use of the levee system by the GRANTEE and/or its contractors. In the event any such facilities are not restored to their "as-built" condition in accordance with Paragraph 2, above, within 30 days after the DISTRICT shall have demanded the same in writing, the DISTRICT shall be authorized or commission such repairs and, following demand therefor, shall have an action against the GRANTEE for the reasonable cost thereof, for the DISTRICT's associated administration costs, and for such attorney fees and court costs as may be permitted by law.

4. The GRANTEE agrees to indemnify and hold the DISTRICT harmless from and against any and all liability, causes of action, claims and expense for personal injury or property damage arising out of or occasioned by the use of the EASEMENT AREA by the GRANTEE pursuant to this Easement Agreement, except as may be caused solely by the negligence of the DISTRICT, its agents and employees.

5. Except as provided herein, the GRANTEE shall be responsible for obtaining rights of ingress and egress to and from the Easement Area. Any use by the GRANTEE of the DISTRICT's levee for vehicular traffic shall be limited to the Easement Area, and shall be limited to ¾ ton rated pickups and automobiles (except in the immediate work area).

6. The GRANTEE agrees to reimburse the DISTRICT for all costs incurred by the DISTRICT in connection with the DISTRICT's inspection of the installation, operation, maintenance, repair and replacement work permitted under this agreement, which inspection costs shall be itemized and transmitted by the DISTRICT to the GRANTEE within ninety days after their accrual.

7. The GRANTEE agrees to notify the DISTRICT at least 24 hours prior to beginning any work in the Easement Area.

8. Upon completion of installation of the construction or any replacements thereof, the GRANTEE shall furnish to the DISTRICT two copies of "as built" plans for the Construction or replacement.

9. In the event the Corps of Engineers or the DISTRICT shall determine that it shall be necessary to re-shape, relocate, or re-build its levee improvements in the Easement Area, and in the event, in the determination of the DISTRICT, such work shall necessitate the removal, re-installation, replacement, relocation and/or alteration of the Construction, the GRANTEE agrees to reimburse the DISTRICT upon demand for that part of the DISTRICT's cost for such work that shall be determined by the DISTRICT to be attributable to such removal, installation, replacement, relocation and/or alteration of the Construction.

10. The GRANTEE shall maintain the Construction in a manner which will not interfere with the continued operation and maintenance of the DISTRICT's levee and channel facilities, the level of flood protection afforded by the DISTRICT's levee system to be maintained at all times.

11. GRANTEE assumes the entire risk of loss or damage to the Construction, from all causes whatsoever, including flood or other natural disaster or act of God, and excluding only loss or damage caused solely by the negligence of the DISTRICT or its officers and employees.

12. It is understood that this agreement does not include a warranty by the DISTRICT of its title to the Easement Area or to the interest herein conveyed.

IN WITNESS WHEREOF, the parties hereto have executed this Easement Agreement on the respective dates shown, such agreement to be effective upon the date the same has been signed by all parties.

Papio-Missouri River Natural Resources District

John Winkler, General Manager

GRANTEE

CITY OF BELLEVUE

Address: _____

By _____
Name and Title

STATE OF NEBRASKA)
) SS
COUNTY OF _____)

On this _____ day of _____ 2013, before me, a Notary Public in and for said County, personally came the above named JOHN WINKLER, General Manager of the Papio-Missouri River Natural Resources District, and he acknowledged the execution of the above Easement Agreement as his voluntary act and deed and the voluntary act and deed of said District.

WITNESS my hand and Notarial Seal the date last aforesaid.

Notary Public

Plan Set # _____

BELLEVUE WATERWISE BEST MANAGEMENT PRACTICES

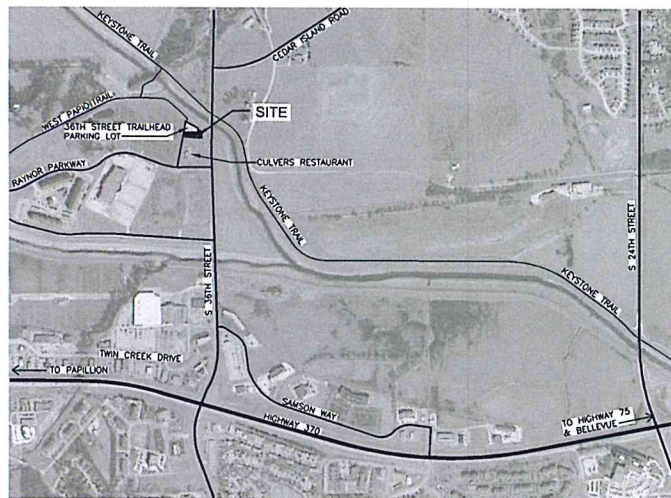
1244 South 36th Street
Bellevue, Nebraska

Project Sponsor:
City of Bellevue Public Works Department

Property Owner:
Papio-Missouri Natural Resources Department



Vicinity Map



NO SCALE



Standard Abbreviations

| | | | |
|-----------|---------------------------|----------|---|
| ASPH. | Asphalt | MAX. | Maximum |
| B.B. | Bulld & Burled | MFR. | Manufacturer |
| B.C. | Bottom of Curb | MIN. | Minimum |
| B.O.T. | Bottom of Trench | M.H. | Manhole |
| B.R. | Bottom of Ramp | M.U.D. | Metropolitan Utilities District |
| B.S. | Bottom of Stairs | MUTCD | Manual on Uniform Traffic Control Devices |
| B.W. | Bottom of Wall | NO. | Not In Contract |
| CAL. | Caliper | N.I.C. | Not In Contract |
| C/C | Center to Center | NR-# | Neighborhood Sign |
| C.E. | Cover Elevation | N.R.C.S. | Natural Resources Conservation Service |
| CL | Centerline | O.C. | On Center |
| C.J. | Contraction Joint | O.D. | Outside Diameter |
| CLR. | Clear | O.P.P.D. | Omaha Public Power District |
| C.M.P. | Corrugated Metal Pipe | P | Pavement (Elev.) |
| C.M.U. | Concrete Masonry Unit | P.C. | Point of Curvature |
| COL. | Column | P.C.C. | Portland Cement Concrete |
| CONC. | Concrete | PERF. | Perforated |
| CON. | Container | POT | Containerized Plant |
| CONT. | Continuous | P.O.V. | Privately Owned Vehicle |
| COORD. | Coordinate | P.T. | Point of Tangency |
| C.Y. | Cubic Yard | P.V.C. | Polyvinyl Chloride |
| Ø or DIA. | Diameter | PVMT. | Pavement |
| DBL. | Double | R. | Radius |
| DWG. | Drawing | R.C.P. | Reinforced Concrete Pipe |
| EA. | Each | REINF. | Reinforcing |
| E.F. | Each Face | REQ'D | Required |
| E.J. | Expansion Joint | RM | Rem Elevation |
| ELEV. | Elevation | R.O.W. | Right of Way |
| EQ. | Equal | R.P. | Radius Point |
| EXG. | Existing | SCH. | Schedule |
| E.W. | Each Way | S.F. | Square Foot |
| F.E.S. | Flared End Safety Section | SPEC. | Specification |
| F.G. | Finish Grade | S.S. | Stainless Steel |
| F.L. | Flow Line | STD. | Standard |
| FIG. | Footing | STL. | Steel |
| G. | Ground (Elev.) | S.W. | Short Way |
| GAL. | Gallon | S.Y. | Square Yard |
| GALV. | Galvanized Steel | T&B | Top and Bottom |
| H.D.P.E. | High-Density Polyethylene | T.P.F. | Tree Protection Fencing |
| HT. | Height | T.C. | Top of Curb |
| H. | High | T.O.T. | Top of Trench |
| H.P. | High Point | T.R. | Top of Ramp |
| HORIZ. | Horizontal | T.S. | Top of Stairs |
| I.E. | Invert Elevation | T.W. | Top of Wall |
| I.D. | Inside Diameter | TYP. | Typical |
| JT. | Joint | VERT. | Vertical |
| L.A. | Landscape Architect | W. | Wide |
| L.F. | Linear Feet | W.W.F. | Welded Wire Fabric |
| LG. | Long | W.S. | Water Surface |
| L.P. | Low Point | W.T. | Weight |
| L.W. | Long Way | W/ | With |

Schedule of Drawings

| | |
|----|---------------------------|
| C0 | Cover Sheet |
| C1 | Preparation & Layout Plan |
| C2 | Coordinate Plan |
| C3 | Grading Plan |
| C4 | Planting Plan |
| C5 | Site Details |

BELLEVUE WATERWISE BEST MANAGEMENT PRACTICES

1244 South 36th Street, Bellevue, Nebraska

PROJECT SPONSOR: City of Bellevue Public Works Department

PROPERTY OWNER: Papio-Missouri River Natural Resources District

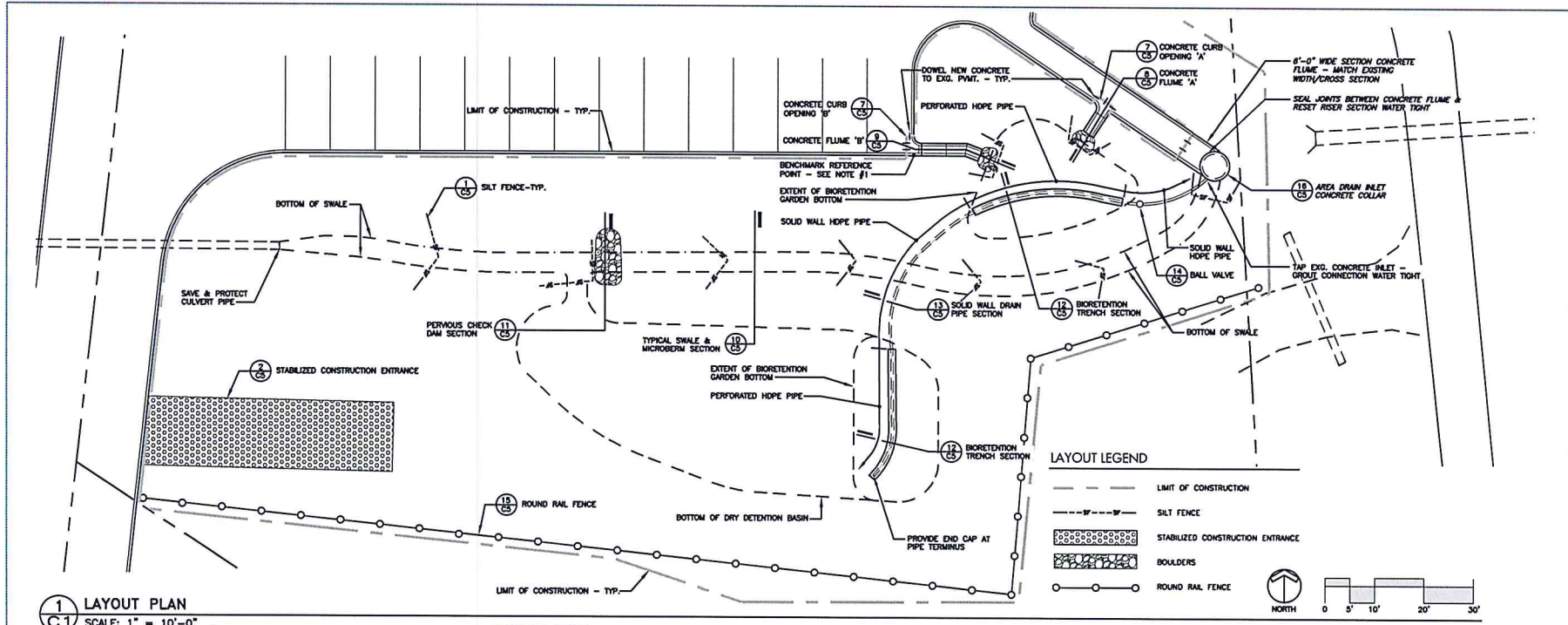
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COVER SHEET

MAIN PROJECT: 0471
DATE: 1/03/2013

Sheet Number: **C0**

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1 LAYOUT PLAN
SCALE: 1" = 10'-0"

PROJECT NOTES

GENERAL NOTES
1. Location survey is adopted from the original construction documents for the West Plaza Trail Parking Lot and may not represent as-built conditions. Spot elevations were collected using a builder's level. Contour interval is one foot. Assumed bench mark elevation = 983.35 - top of curb at southeast corner of parking lot. Contractor shall field confirm elevations as required to complete the Work.
2. All work shall be done in accordance with the requirements of the Drawings and Technical Specifications.
3. The work consists of demolition and removal, grading, drainage improvements, construction of stormwater Best Management Practices (BMPs), erosion control, soil preparation, landscape planting, native grass seeding and incidental construction as shown on the Drawings and as hereinafter specified. Unless specifically noted, this project includes the furnishing of all labor, equipment and materials and in performing all operations in connection with the installation as specified.
4. All local, municipal, and state laws, rules and regulations governing any portion of this work are incorporated into these specifications and their provisions shall be carried out by the Contractor.
5. Prior to bidding, the Contractor shall make whatever field investigations are necessary to satisfy himself of existing site and soils conditions. Contractor will be responsible for obtaining all permits and paying all fees for construction. Copies of all permits shall be provided to the A/E, Owner, and Project Sponsor.
6. The Contractor shall continuously maintain adequate protection of all life work from ground and shall protect the Owner's property from structures, lines, piping, electrical systems, sewers, sidewalks, landscaping, drainage, aboveground or underground installations or structures of any kind, and shall be held responsible for any damage that does occur. All materials and equipment shall be kept in a designated storage area.
7. The Contractor shall guarantee all materials and workmanship for a period of one year following the Date of Substantial Completion.

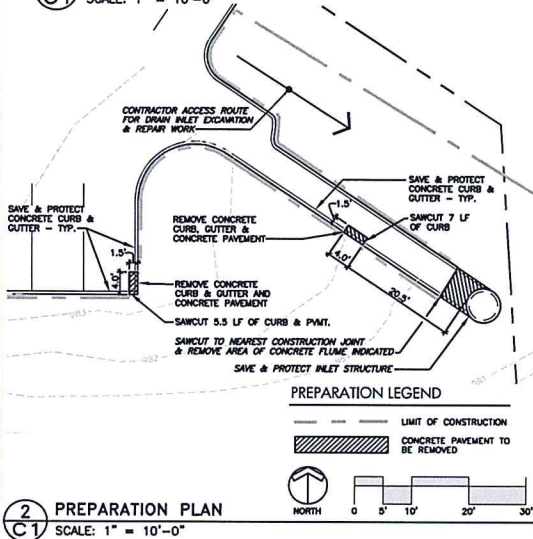
CONTROL OF WORK
8. The locations of all aerial and underground utility facilities are approximate or may not be indicated on these Drawings. Underground utilities, whether indicated or not, will be located and flagged by the utility at the request of the Contractor. It shall be the responsibility of the Contractor to protect, and relocate all existing utilities, pavement and other improvements if required. Any damages to existing utilities, paved streets or any other improvements caused by construction operations shall be repaired at the Contractor's expense.
9. The Contractor shall call for the existing utility location stakes 48 hours prior to digging. For specific locations to be related prior to digging, call Digger's Hotline of Nebraska and all applicable utility companies: Utility Companies Index: Digger's Hotline of Nebraska (402) 241-2365. The Contractor shall protect all existing utility facilities occurring within the Project site.
10. The Contractor shall restrict construction operations, including on-site vehicle movement, parking and material storage to designated areas of the site. If additional storage or staging areas are required, the Contractor shall obtain the Owner's permission to utilize designated areas.
11. If vegetation is present that appears to conflict with construction or may be damaged, the Contractor shall inform the A/E for a decision. Do not remove any vegetation until directed by A/E.
12. The Contractor shall erect any necessary barriers, signs or other safety equipment to cordon off or clearly demarcate all hazardous conditions created due to the Work.
13. All construction and incidental debris (demolition, construction waste, packing materials, excess concrete, etc.) shall be disposed of off-site at a government approved disposal site, to be disposed or hauled by the Contractor. No materials shall be allowed on-site.
14. The Contractor may, at his option, install temporary access gates to restrict site access during the construction period. Provide 30" x 30" steel plates or other equipment as required to all equipment removal. All gates shall be hauled off-site the same day as removed.
15. The Contractor shall designate one location, on the project site, to be approved by the A/E for concrete truck wash-out activities and ensure that all trucks use only that area. The wash-out drain shall be no closer than 50 feet to any woody plant materials. Soil from this area shall be removed and replaced with non-contaminated topsoil upon completion of all concrete work. Replace soil to a 4" minimum depth to the extent evidenced by surface contamination with concrete materials, or as directed by the A/E.
DEMOLITION AND REMOVALS
16. This work shall consist of removing concrete pavement and concrete curbing as shown on the Drawings.
17. Size cut existing pavement to full depth to create sharp vertical edge. Remove concrete walls and curb to nearest control joint.
18. Name from which concrete materials are to become the Contractor's property may be removed by any reasonable means.
19. Unless otherwise provided, the removal of existing items will include removal of all items that shall be hauled off-site the same day as removed.
20. All holes from removed items shall be filled with clean fill and compacted to original grade. Materials such as logs, stumps, soil, weeds, or other organic materials shall not be used. Large stones shall not be in the backfill. Backfill to 85% compaction of optimum moisture content.
21. Contractor shall take necessary precautions to protect items to remain from damage caused by demolition activities. Damage to items to remain shall be repaired by the Contractor at his expense.

EROSION CONTROL

22. The Contractor shall cooperate with the Owner and A/E in regard to the construction activities so as to minimize the potential for erosion. Silt fence shall be installed as detailed on the Drawings before commencement of grading activities. Silt fence shall be installed 100% or approved equivalent.
23. The Contractor shall monitor all grading and install additional silt fencing if necessary or as directed by the A/E. The Contractor shall periodically remove accumulated sediment from behind all fences if necessary.
24. Do not allow erosion unless otherwise noted.

CONCRETE WORK
25. Concrete shall be Class "TL 80" per City of Omaha Standard Specifications for Public Works Construction.
26. Prior to concrete installation, the subgrade shall be graded and compacted to produce a smooth surface true to grade. Subgrade compaction shall include grade adjustments, regrading, drying and compacting to a 95% density.
27. The operations of depositing, spreading, and consolidating the concrete shall be done so that the finished product shall be smooth and dense, free from joints, and free from patches of segregated aggregate.
28. Paved surfaces shall have a medium brown finish, homogeneous to flume centerline.
29. Control (construction) joints spacing shall equal the pavement width along the flume centerline if not indicated otherwise. Control joints shall be saw cut or hand-tooled.
30. Expansion joints (E.J.) shall be located adjacent to building walls and fixed objects or as indicated on the Drawings. Concrete joint sealant shall be a low modulus, one-part silicone sealant and shall match the color of the concrete pavement. Sealant to be flush with concrete surface. Take care in applying sealant. Immediately clean up spills and excess sealant.

BOULDERS
31. Boulders shall be placed boulders as supplied by Sun Valley Natural Stone, 5601 Harrison Street, Omaha, NE (402)738-1580 or approved equivalent.
32. The design intent for the boulder check dam is to direct first flush flows within the waste into the dry detention basin. After the dry detention basin has filled to the bottom of the waste, the boulder check dam will allow additional flow to continue down the stream to the drain inlet. For large flows, the boulder check dam will create approximately 8" of additional temporary storage within the dry detention basin. The individual boulders shall be built tight with small gaps to allow only minimal flow through the boulder check dam as additional temporary storage within the dry detention basin is utilized.
33. Type "T" boulders shall be a minimum of 15" x 15" and 15" high and shall range from 300 to 500 pounds.
34. Type "B" boulders shall be a minimum of 12" x 12" and 12" high and shall range from 150 to 300 pounds.
35. All boulders shall be placed on the subgrade with equipment or personnel located outside the extent of the bioretention garden bottom and bottom of waste to avoid compaction of subgrade soil.
AREA DRAIN INLET REPAIR AND RECONSTRUCTION WORK
36. The concrete work associated with the drain inlet barrel shall be bid and paid separately from all other Work specified within the Contract Documents.
37. The area drain inlet barrel corrective work consists of excavating, removing and disposing of the lower section of the existing concrete flume adjacent to the drain inlet, excavation of soil around drain inlet section, repositioning upper barrel of drain inlet to align with the lower section, construction of a concrete collar around the two sections, regrading and compacting backfill adjacent to drain inlet, repaving the section of concrete flume adjacent to the inlet, sealing of joints, and restoring the contractor's access route which includes (if/when) seed and preparation, installation of turfgrass seed, and installation of erosion control blanket - type 1 as indicated on the Drawings. Notes specific to this work are shown in detail on the Drawings.
38. All concrete work shall conform to the "Concrete Work" section of these notes.
39. All FR should be placed and compacted on structural FR. FR should be placed in thin lifts not to exceed 8 inches in loose thickness. Structural FR should be compacted to a minimum 95 percent density at optimum moisture content (between -3 and +4 percent of optimum) per ASTM D698 D-10.
40. Fine grade topsoil eliminating rough or low areas. Machine profiles and contour of subgrade. Lightly compact placed topsoil to prepare it for seeding.



2 PREPARATION PLAN
SCALE: 1" = 10'-0"

BELLEVUE WATERWISE BEST MANAGEMENT PRACTICES

1244 South 36th Street, Bellevue, Nebraska

PROJECT SPONSOR:
City of Bellevue Public Works Department

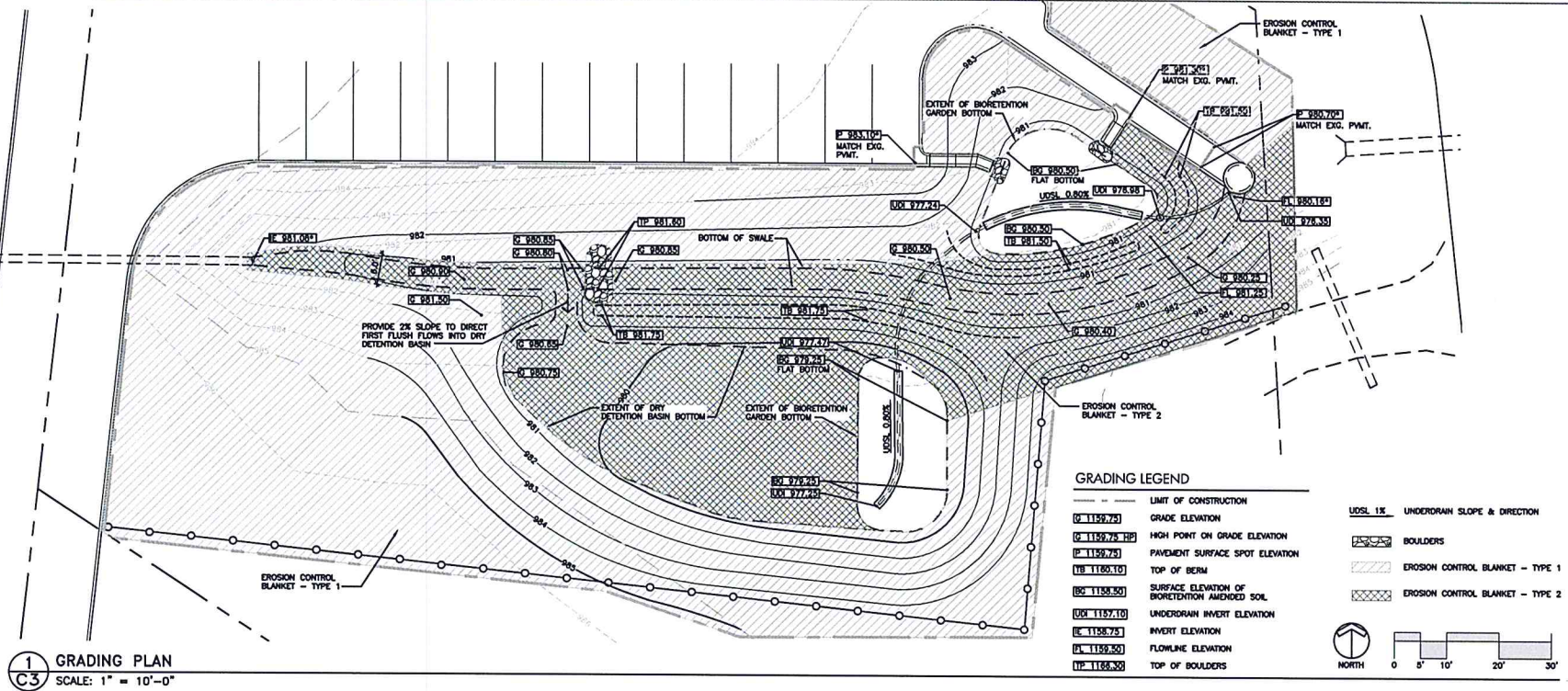
PROPERTY OWNER:
Pawnee-Missouri River Natural Resources District

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PREPARATION & LAYOUT PLAN

Sheet Number
C1

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GRADING & EARTHWORK NOTES

GRADING AND EARTHWORK

- This Work shall consist of general site excavation and grading as shown on the Drawings. Coordinate general site grading with requirements for bioretention garden.
- Grading operations, including equipment turning movements, shall occur only within Limits of Construction as indicated on the Drawings.
- Proposed contours and spot elevations are controls only. All grading shall be smooth and continuous. Proposed elevations shown are finished elevations. Final grade shall be within $\pm 0.1'$ of the Drawings. Final grade for bioretention garden overflow shall be $\pm 0.05'$.
- All elevations marked with an asterisk (*) shall be field verified prior to construction. Notify the A/E of any conflicts with the Drawings prior to construction.
- Provide positive drainage at all times within the Limits of Construction. Do not allow water to pond in excavation areas or next to structures. Maintain all existing drainage patterns except as modified by the Drawings.
- Where topsoil exists, strip soil to a depth of 8" from all areas to be graded. Separate organic material from topsoil & dispose of the organic material off-site. Stockpile topsoil separately from other excavated materials for redistribution during landscape grading. Provide all fence enclosure around topsoil pile.
- Off-site borrow should be a clean, inorganic silt or lean clay with a liquid limit less than 45 and a plasticity index less than 20. Borrow material should not contain an appreciable amount of roots, rock, or debris, and should not contain any foreign material with a dimension greater than 3 inches. 8. Additional topsoil, if required, shall be of similar characteristics, development, pH and fertility as the site's native soil or shall be as specified. Spread topsoil on all disturbed areas not scheduled to receive pavement, or as indicated on the Drawings.
- Surfaces to receive fill should be broken up and recompacted to allow new fill to bond to the existing soil. Provide moisture conditioning of borrow materials as necessary to meet compaction requirement. Compact outside of the bioretention ponding soils to 85% modified proctor at optimum moisture content.
- All excavated materials not used in grading operations shall be hauled off-site at the Contractor's expense.
- Use stockpiled topsoil for fine grading of landscape areas. Upon completion of other grading operations redistribute topsoil to a depth of 8" on those areas receiving landscape fill. Topsoil shall be free of stones, branches and other debris. Mix upper 2"-3" of subsoil with lower 3" of re-spread topsoil to avoid distinct layering of soils. Grade soil to 1" below the finish surface elevation of all power walkways and walls. Place topsoil to meet lines, grades and elevations shown, after light rolling and allowing for natural settlement.
- Final grade topsoil eliminating rough or low areas. Maintain profiles and contour of subgrade. Lightly compact placed topsoil to prepare it for seeding.

BIORETENTION NOTES

BIORETENTION GARDEN PRODUCTS AND MATERIALS

- Sand/Compost Amended Soil: The amended soil shall conform to the following specifications:
- 70% (by volume) Fine Sand: Shall be clean and free of toxic materials. Sand shall meet ASTM M-5 or ASTM C-33 with a grain size of 0.075" to 0.04".
- 30% (by volume) Organic Compost: Ono-Gro as produced by the City of Omaha's compost facility located at 15705 Horton Lewis Road, Bellevue, Nebraska 68123. Phone: (402)444-8685.
- The amended soil shall be properly mixed prior to placement. Mixing shall occur to ensure that sand and compost are thoroughly and evenly mixed and a consistent texture is achieved throughout. Provide clean mixing conditions to ensure foreign objects, including other soils, are not introduced during the mixing process. Do not mix materials in wet conditions or conditions that would cause soil clumps to form.
- Solid Wall Outlet Pipe: 4" diameter non-perforated, single-wall HDPE pipe as manufactured by Advanced Drainage Systems or approved equivalent. Supplier: Advanced Drainage Systems, Inc. Phone: (800)821-8710.
- Underdrain Pipe: 4" diameter perforated, single-wall HDPE pipe as manufactured by Advanced Drainage Systems or approved equivalent. Provide suitable connection rings, flanges and couplers to join pipe sections together per manufacturer's written recommendations. Supplier: Advanced Drainage Systems, Inc. Phone: (800)821-8710.
- Ball valve: 2" schedule 40 PVC ball valve. Provide sample to A/E for approval. Ball valve will be returned to Contractor upon approval.
- Drainage Aggregate: 1/2" minus washed crushed rock, may vary from 3/8" to 1/2" diameter with no fines.
- Geotextile fabric shall be Mirafi 140N non-woven, needle-punched filter fabric, or approved equivalent.
- Organic matter shall be dark brown or black in color and capable of enhancing plant growth, 98 percent of the organic matter shall pass a 1-inch screen. There shall be no admixture of refuse (i.e., noticeable inert contamination) or other materials toxic to plant growth. The organic matter shall be free from foreign objects larger than 1 inch in diameter. Organic matter shall be standard grower's mix. Provide sample of organic matter in 1 gallon plastic bag to A/E for review and approval.

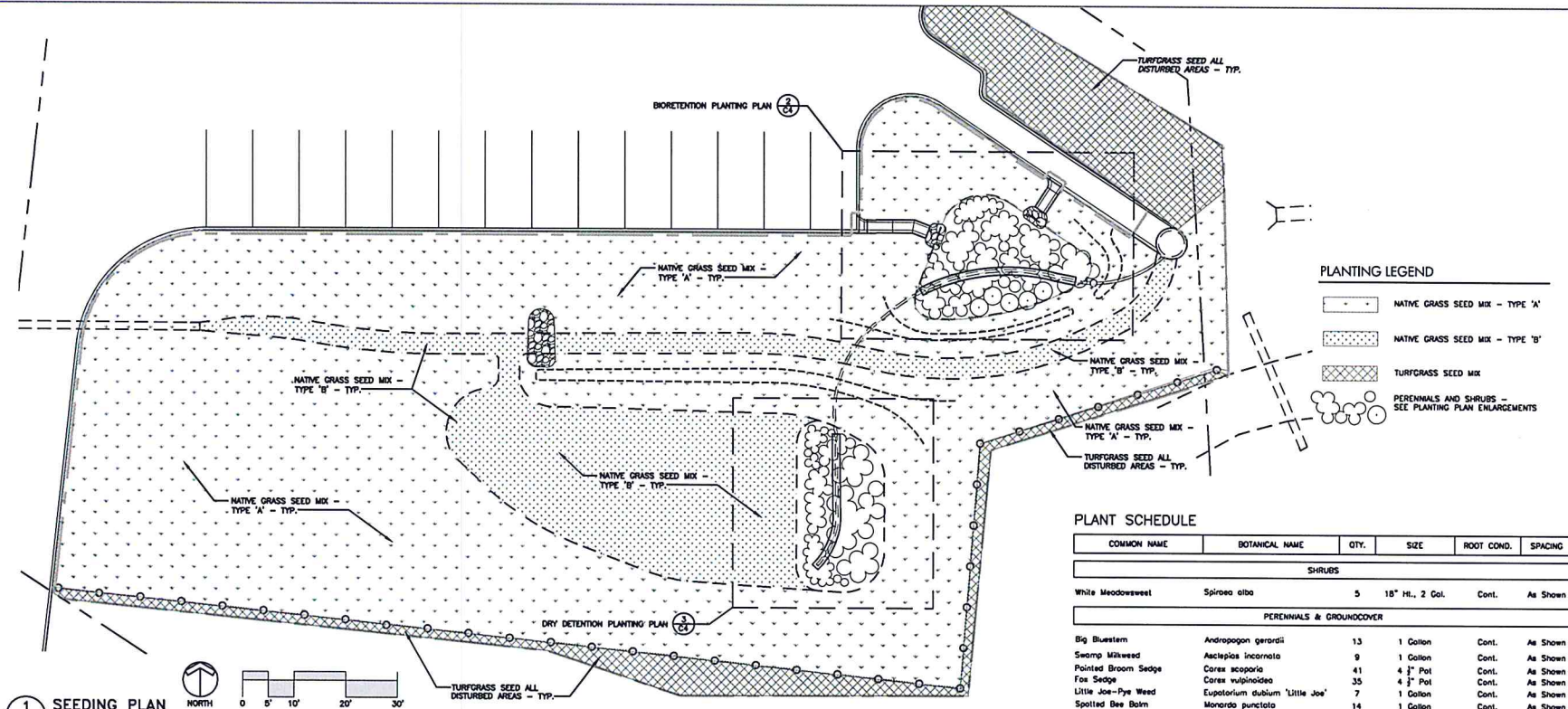
BIORETENTION GARDEN CONSTRUCTION

- The goal of the Project during construction is to minimize soil compaction within the extent of the bioretention garden bottom and bottom of swale to ensure long-term infiltration within the gardens and swale. All excavation and grading within the bioretention gardens shall occur as part of two operations. The first operation shall be to excavate the bioretention garden utilizing a backhoe or other similar equipment that is located outside the perimeter of the bioretention garden bottom to avoid compaction of bioretention garden subgrade soil. The second operation shall be to excavate the bioretention infiltration trench in a single pass utilizing an excavator with a ground pressure of 5 p.s.i. or less. No other equipment operations shall occur within the bioretention garden bottom.
- Upon completion of excavation, the A/E shall observe the subgrade condition of the bioretention garden and shall verify all subgrade elevations prior to placement of amended soil mix by the Contractor.
- If subgrade compaction has occurred during the excavation process, the Contractor shall loosen soils within the compacted area utilizing a relay device capable of reaching a depth of 12 inches below the surface.
- Upon approval of subgrade conditions and elevations by the A/E, scarify the bottom of the bioretention garden to a 2" depth. Install underdrain system and valve in accordance with the Drawings. Use care to avoid compaction within the bioretention garden.
- Place sand/compost amended soil within bioretention infiltration trench in maximum 8" lifts. Do not place if sand/compost amended soil or subgrade is frozen, muddy, or excessively wet. Overfill sand/compost amended soil beyond the proposed final grade to accommodate pre-soaking and hand raking.

- Pre-soak the placed soil until water flows from the underdrain system. Saturate the soil using water applied by spraying or sprinkling. During the soil saturation process, all depressions caused by settlement shall be filled with additional amended soil mix and the surface shall be re-graded until a smooth and even finish grade is achieved at the required elevation. It is generally understood that up to 20% volume reduction may occur as a result of settlement. Compaction shall not exceed 85% maximum dry density.
- If sand/compost amended soil becomes contaminated by construction site runoff during the construction process, the contaminated material shall be removed and replaced with non-contaminated sand/compost amended soil at no additional cost to the Owner or Project Sponsor.
- Amend the remainder of the bioretention garden soil outside of the infiltration trench by placing a minimum 2" depth of organic matter to full extent of the area. Retain organic matter into upper 8" of bioretention garden soil. Do not spread if organic matter or subgrade is frozen. Eliminate uneven areas and low spots. Remove all debris, weeds, and undesirable plants and their roots from area to be seeded.
- Place construction fencing around the bioretention garden or swale as needed to prevent construction vehicles and equipment from compacting the soils after placement.
- Prior to final seeding, erosion control blanket installation and planting, the bioretention garden shall be reviewed and approved by the A/E.

BIORETENTION GARDEN PLANTING

- Carefully prepare the amended soil bed by scarifying and hand raking to a 2" depth to remove any soil crust.
- Install plants in accordance with the Drawings.
- Install 2" depth of mulch around all native grasses, wildflowers, shrubs, and trees after planting.
- All plants shall be thoroughly watered in upon completion of planting operations.
- Contact A/E to conduct review of plantings when installation is completed.
- Warranty plantings for a period of one year from the Date of Substantial Completion, against defects including death and unsatisfactory growth, except for defects resulting from abuse or damage by others, or unusual phenomena or incidents which are beyond the control of the Contractor. Warranty covers a maximum of one replacement per item. Replacement as a result of initial "punch list" does not constitute a warranty replacement.



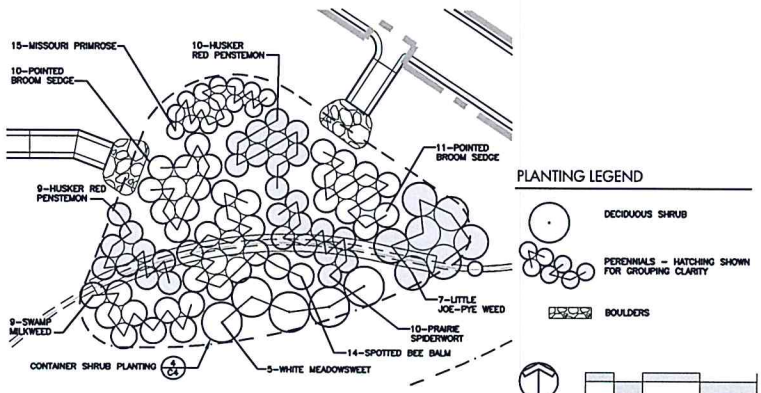
PLANTING LEGEND

- NATIVE GRASS SEED MIX - TYPE 'A'
- NATIVE GRASS SEED MIX - TYPE 'B'
- TURFGRASS SEED MIX
- PERENNIALS AND SHRUBS - SEE PLANTING PLAN ENLARGEMENTS

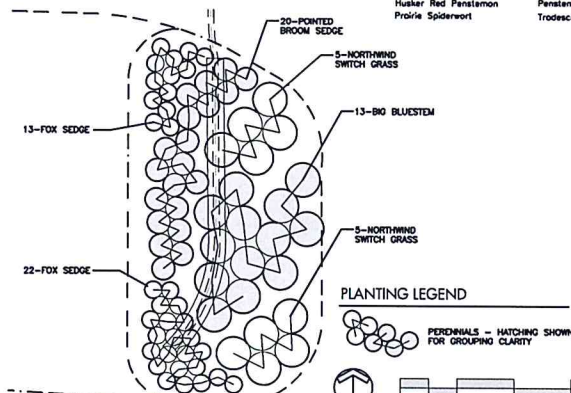
PLANT SCHEDULE

| COMMON NAME | BOTANICAL NAME | QTY. | SIZE | ROOT COND. | SPACING |
|-------------------------------------|----------------------------------|------|-----------------|------------|----------|
| SHRUBS | | | | | |
| White Meadowsweet | Spiraea alba | 5 | 18" Ht., 2 Gal. | Cont. | As Shown |
| PERENNIALS & GROUNDCOVER | | | | | |
| Big Bluestem | Andropogon gerardii | 13 | 1 Gallon | Cont. | As Shown |
| Swamp Milkweed | Asclepias incarnata | 9 | 1 Gallon | Cont. | As Shown |
| Pointed Broom Sedge | Carex scoparia | 41 | 4 1/2" Pot | Cont. | As Shown |
| Fox Sedge | Carex vulpinoidea | 35 | 4 1/2" Pot | Cont. | As Shown |
| Little Joe-Pye Weed | Eupatorium dubium 'Little Joe' | 7 | 1 Gallon | Cont. | As Shown |
| Spotted Bee Balm | Monarda punctata | 14 | 1 Gallon | Cont. | As Shown |
| Missouri Primrose | Oenothera missouriensis | 15 | 1 Gallon | Cont. | As Shown |
| Northeast Switchgrass | Panicum virgatum | 10 | 1 Gallon | Cont. | As Shown |
| Husker Red Penstemon | Penstemon digitalis 'Husker Red' | 19 | 1 Gallon | Cont. | As Shown |
| Proflie Spiderwort | Tradescantia bracteata | 10 | 1 Gallon | Cont. | As Shown |

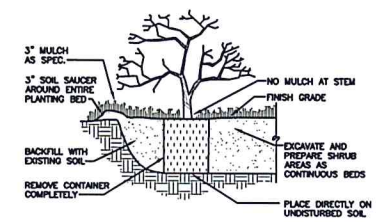
1
C4 SEEDING PLAN
SCALE: 1" = 10'-0"



2
C4 BIORETENTION PLANTING PLAN
SCALE: 1" = 5'-0"



3
C4 DRY DETENTION PLANTING PLAN
SCALE: 1" = 5'-0"



4
C4 CONTAINER SHRUB PLANTING
SCALE: NO SCALE

BELLEVUE WATERWISE BEST MANAGEMENT PRACTICES

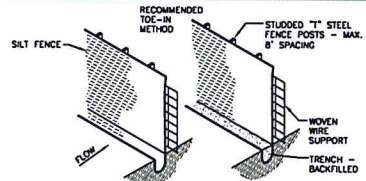
1244 South 36th Street, Bellevue, Nebraska
PROJECT SPONSOR: City of Bellevue Public Works Department
PROPERTY OWNER: Poplar-Missouri River Natural Resources District

| DATE | DESCRIPTION / ISSUE |
|------|---------------------|
| | |
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| | |

PLANTING PLAN

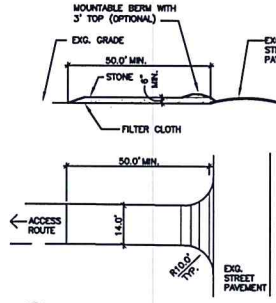
RAW PROJECT: 0471
DATE: 1/03/2013

Sheet Number: **C4**
Copyright 2013 Big Muddy Workshop, Inc.



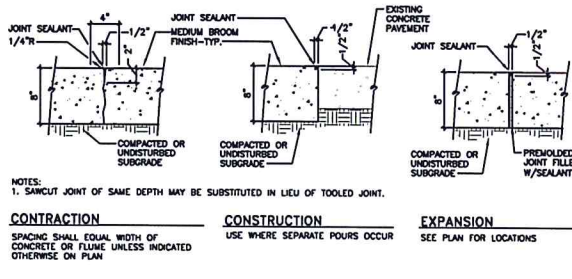
SILT FENCE CONSTRUCTION NOTES:
 1. STEEL POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE.
 2. SILT FENCE SHALL BE TRENCHED IN WITH A SPED OR MECHANICAL TRENCHER SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW.
 3. THE TRENCH SHALL BE A MINIMUM OF 8" DEEP AND 3-4" WIDE TO ALLOW FOR THE SILT FENCE TO BE LAID IN THE GROUND AND BACKFILLED.
 4. SILT FENCE SHALL BE SECURELY FASTENED TO EACH STEEL SUPPORT POST.
 5. CONTRACTOR SHALL CONSTRUCT SILT FENCE PRIOR TO COMMENCEMENT OF GRADING OPERATIONS.
 6. INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED. SILT REMOVAL WILL BE AT CONTRACTOR'S EXPENSE.
 7. SILT FENCE SHALL BE REMOVED WHEN IT HAS SERVED ITS USEFULNESS SO AS NOT TO BLOCK OR IMPED STORM FLOW OR DRAINAGE.

1 SILT FENCE
 C5 SCALE: NO SCALE

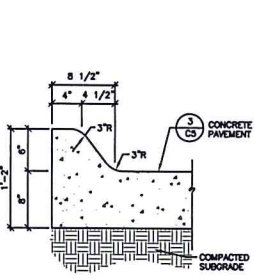


2 STABILIZED CONSTRUCTION ENTRANCE
 C5 SCALE: NO SCALE

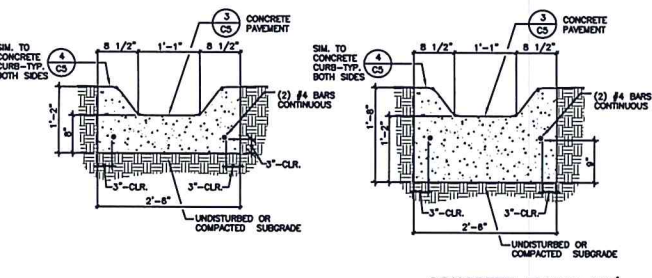
STABILIZED CONSTRUCTION ENTRANCE SPECIFICATIONS:
 1. STONE SIZE - USE 1 1/2" CRUSHER RUN LIMESTONE.
 2. LENGTH - AS REQUIRED, BUT NOT LESS THAN 50 FEET.
 3. THICKNESS - NOT LESS THAN 6" (6) INCHES.
 4. FILTER CLOTH - SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE. FILTER CLOTH SHALL BE MINIMUM 1400 OR APPROVED EQUIVALENT.
 5. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PUMPED ACROSS THE ENTRANCE. IF PUMPING IS IMPRACTICAL, A MOUNTABLE BERM WITH SHIVS SLOPES WILL BE PERMITTED.
 6. PROTECT EXISTING CURB AND CUTTER. REPLACE CURB IF DAMAGED AS A RESULT OF CONSTRUCTION AND/OR SITE ACCESS.
 7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY SHALL BE REMOVED IMMEDIATELY.
 8. WASHING - WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY WHEN WASHING IS REQUIRED. IT SHALL BE DONE IN AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
 9. INSPECTIONS - PERIODIC INSPECTIONS AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.



3 CONCRETE PAVEMENT
 C5 SCALE: 1 1/2" = 1'-0"

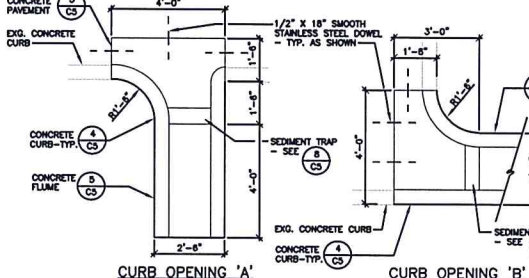


4 CONCRETE CURB
 C5 SCALE: 1 1/2" = 1'-0"

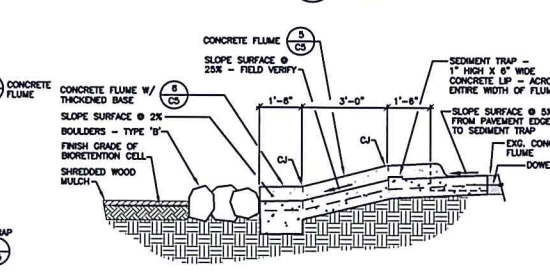


5 CONCRETE FLUME
 C5 SCALE: 1" = 1'-0"

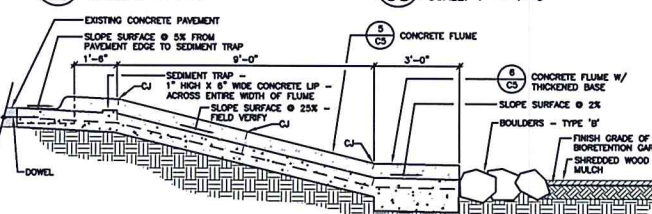
6 CONCRETE FLUME W/ THICKENED BASE
 C5 SCALE: 1" = 1'-0"



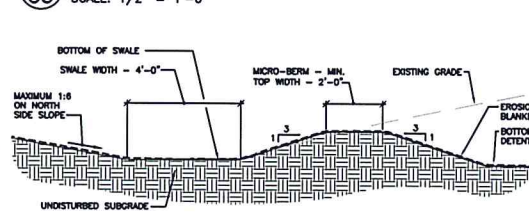
7 CONCRETE CURB OPENING
 C5 SCALE: 1/2" = 1'-0"



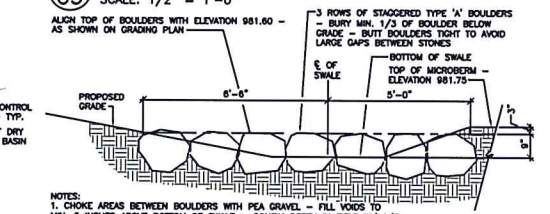
8 CONCRETE FLUME 'A'
 C5 SCALE: 1/2" = 1'-0"



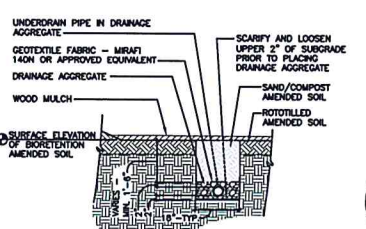
9 CONCRETE FLUME 'B'
 C5 SCALE: 1/2" = 1'-0"



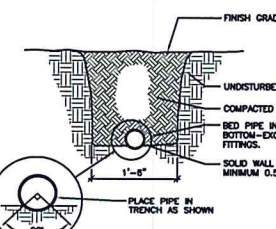
10 TYPICAL SWALE AND MICROBERM SECTION
 C5 SCALE: 1/2" = 1'-0"



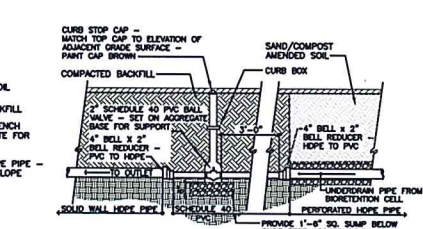
11 PERVIOUS CHECK DAM SECTION
 C5 SCALE: 1/2" = 1'-0"



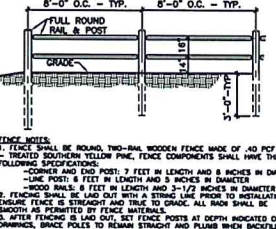
12 BIORETENTION TRENCH SECTION
 C5 SCALE: 1/2" = 1'-0"



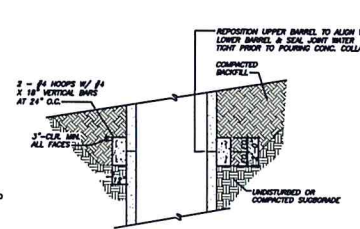
13 SOLID WALL DRAIN PIPE SECTION
 C5 SCALE: 1" = 1'-0"



14 BALL VALVE
 C5 SCALE: 1/2" = 1'-0"



15 ROUND RAIL FENCE
 C5 SCALE: 1/4" = 1'-0"



16 AREA DRAIN INLET CONCRETE COLLAR
 C5 SCALE: 1/4" = 1'-0"