NO. 1. Sediment Logs shall not be installed in the urban freeway medians, nor where cable barrier systems are employed.

2. Locate Sediment Logs as indicated in plans, SWPPP or as directed by the Engineer.

3. Select, install and maintain logs per manufacturer's specifications and good engineering practices.

4. Lay sediment log across prepared ditch or channel. Trenching or burial of Sediment Logs is not required. The close, continuous contact between the bottom of the Log and the ground is mandatory. The logs shall be installed in the ditch, swale or channel bottom perpendicular to the flow of water as shown on detail of this sheet.

5. Stakes as shown. Stakes shall be placed through downstream side only as shown.

6. Do NOT drive stakes through center of the log. Stakes must be driven into the ground as shown.

7. Ensure that no gaps exist between soil and bottom of Sediment Log. Repair any fills or backfills promptly.

8. Placement of Sediment Logs shall be evaluated by the Engineer in rock or soil conditions.

9. Remove Sediment Log BMFs within the ditches/channels and around the storm drain inlets as per the instruction of the Engineer or as soon as practicable after stabilization of the construction disturbed areas.

10. Dispose of Sediment Logs and trapped sediment material and fill trench created by Sediment Log.

11. The installation and maintenance of Sediment Log BMFs shall not negatively impact traffic safety, nor the design function of roadways or bridge drainage facilities. Sediment Logs shall be installed and maintained to carry the stormwater of at least 2-year, 24-hour events.

12. Field adjust and correct Sediment Log BMF immediately if it is causing flooding, erosion, or affecting roadway safety.

13. Install rock riffle/mesh/ramp for channel/ditch lining or rock check dams for longitudinal ditch slopes that exceed 5% and/or for soil conditions not suitable for log installation.

14. The Sediment Log BMF's payables list shall include all materials used for this BMF such as ground preparation, furnishing, installing, maintaining, final removal, and disposal, as well as separating the area to an acceptable condition as per the Engineer's specifications.

15. Refer to Standard Specification Section BID-20.06(B) for Sediment Log material specifications.
**NOTES:**

1. **Rock Riprap/Rock Muck** shall be angular shaped, crushed rock materials.
2. **Rock Riprap/Rock Muck** within the traffic clear zone shall conform to the requirements of Section BID-2.03 Safe Site Grading A and/or Grading C, and Section B13 of the Standard Specifications.
3. Embank rock within traffic recovery area/clear zone into the finished grade so that any portion of the rock above the grade will be less than 4" in height.
4. The installation and maintenance of Rock Protection BMPs shall not negatively impact traffic safety, nor the designed function of roadway or bridge drainage facilities. Rock Protection BMPs shall be installed and maintained to carry the stormwater at least 2-year, 24-hour events.
5. Field adjust and correct Rock Protection BMP immediately if it is causing flooding, erosion, and/or affecting roadway safety.
6. The Rock Protection BMP's pay/did item shall include all materials used for this BMP's on-ground preparation, furnishing, installing, maintaining as well as returning the area to an acceptable condition as approved by the Engineer.

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**DETAIL ES2**

**ROCK PROTECTION FOR INLETS, OUTLETS AND HEADWALL TRANSITION**

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**FLARED END**

**SECTION B-B (NTS)**

**FLUSH HEADWALL**

**PLAN VIEW (NTS)**

**ANLED HEADWALL**

**PLAN VIEW (NTS)**

**WINGWALL**

**SECTION A-A (NTS)**

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**DEPARTMENT OF TRANSPORTATION**

**MEDICAL TRANSPORTATION DESIGN**

**ADJACENT DEVELOPMENT SECTION**

**STORMWATER QUALITY PROTECTION & EROSION/SEDIMENT CONTROL DETAILS**

---

**TRACS NO:**

**00**

**OF**

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**INVENTOR'S SCALE**

**600:**

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**DATE:**

**5/28/2011**

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**FILE NAME:**

**WS-Headwall:ES2, updated.442.es2, Rock Protection, Det, Outlet, Headwall.dgn**

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NEW SHOULDER BUILDUP PROTECTION SECTION (NTS)

NOTES:
1. Install Sediment Wattles as slopes are constructed to grade or as directed by the Engineer. Select and maintain in conformance with manufacturers' specifications to meet site conditions for sediment control and in accordance with good engineering practices. No Sediment Wattles shall be installed in urban freeway medians, nor where pipe barrier systems are employed.
2. Sediment Wattles shall be in continuous contact with trench bottom and sides. Do not overlap wattle ends on top of each other. A 20° DI angle may be made from 2-3 ft exosol or shroud bents.
3. Butt adjoining wattles tightly against each other. Drive the first end state of the second wattle an angle toward the first wattle to help abut them tightly.
4. Repair any flats or quills promptly. Field adjust and correct Wattle BMP immediately if it is causing flooding, erosion, and/or affecting roadway safety.
5. Construction of cut slopes 20° and steeper in soil and rock materials that can be rolled shall be constructed, whenever possible, by hombenching. Refer to Slope Whombenching Detail.
6. Loosening surface soil is not required where Whombenches are used. For seeded areas, tillage shall be performed to form minor ripples and furrows parallel to new slope contours and as specified in Section 806 of the Standard Specifications.
7. Divert and direct run-on water from outside of the slopes to the swales and/or rock riprap. Ditching ditches and/or drains are necessary on natural undisturbed slopes beyond the top limits of new slopes to divert run-on water.
8. Installation and maintenance of Sediment Wattle BMPs shall not negatively impact traffic safety, nor the designed function of roadway or bridge drainage facilities.
9. Install and maintain Sediment Wattle BMPs to carry the stormwater of at least 2-year, 24-hour events.
10. The Sediment Wattle BMP's pay-off should shall include all materials used for this BMPs of all ground preparation, furnishing, installing, maintenance, final reseed, and disposal of this temporary BMPs, as well as returning the area to on acceptable condition as approved by the Engineer.
11. Refer to Standard Specifications Section 806-2606C for Sediment Wattles material specifications.
NOTES:
1. Locate Sediment Control Berms as indicated on plans or as directed by the Engineer.
2. Surface materials (e.g., soils, rock, branches, leaves, slash and chips) shall be scraped from the existing grade as needed to construct the berm prior to placement of roadway embankment. After scraping material into berm, compact berm as shown. Rock and slash shall extend no more than 4 feet above the surface.
3. Construct Sediment Control BERM on the same contour as the toe of new slope and a minimum of 2 feet beyond the toe of new slope. For the seeded areas, fill to form minor ridges and furrows parallel to new slope contours as specified in Section 805 of the Standard Specifications.
4. The installation and maintenance of Sediment Control BERM BMPs shall not negatively impact traffic safety, nor the designed function of roadway or bridge drainage facilities. For erosion/sediment control purposes, Sediment Control BERM BMPs shall be installed and maintained to carry the stormwater of at least 2-year, 24-hour events.
5. Remove Sediment Control Berms per the direction of the Engineer or as soon as practical upon stabilization of the construction disturbed area.
6. Fill, adjust and correct Sediment Control BERM BMP, if it is causing flooding, erosion, and/or affecting roadway safety.
7. Sediment Control berms may be paid as a part of slope construction/roadway reconfiguration. When paid separately, the Sediment Control BERM BMPs pay/total shall include all materials used for this BMP, all ground preparation, furnishing, installing, final removal, and disposal of this temporary BMP, as well as returning the area to an acceptable condition as approved by the Engineer.
8. OPTION TO SEDIMENT CONTROL BERM: When shown on layout plans and/or called for in Special Provisions, for urban situations, or where surface materials are not available, use wattles. Wattles shall be selected, installed, and maintained in accordance with manufacturers' specifications and good engineering practices. Refer to Sediment Wattles BMP.
STORM DRAIN/INLET CATCH BASIN AT CURB PLAN VIEW (NTS)

SECTION A-A (NTS)

NOTES:
1. Gravelbag material shall be from polypropylene, polyethylene, or polyethylene woven fabric. Refer to Special Provisions for Multi-burst strength and unretained stability requirements.
2. When sediment depth reaches 3 inches, remove and properly dispose of accumulated materials.
3. Do not apply Gravelbag BMP in the area of open traffic.
4. When applied as a perimeter control BMP, Gravelbags shall be used for surface areas where wattles and stitching are not sufficient.
5. Do not install Gravelbags as multiple ditch check dams.
6. The installation and maintenance of Gravelbag BMPs shall not negatively impact traffic safety, nor the designated function of roadway or bridge drainage facilities. Gravelbag BMPs shall be installed and maintained to carry the stormwater of at least 2-year, 24-hour events.
7. Gravelbags are designed for temporary water quality protection only. Reduce Gravelbags per the direction of the Engineer or as soon as practicable upon stabilization of the construction disturbed area.
8. If field adjustments are required, Gravelbag BMP immediately if it is causing flooding, erosion, and/or affecting roadway safety.
9. Refer to Special Provisions for grading and application of gravel material.
10. The Gravelbag shall be placed in a manner that includes all materials used for this BMP in all ground preparation, installation, maintenance, final removal, and disassembly, as well as returning the area to an acceptable condition as approved by the Engineer.
NOTES:
1. Construct Rock Check Dams with angular-shaped Gradation C Rock Muich as defined in Section 810-2.03 of the Standard Specifications. Natural river-run materials, especially the rounded natural river rocks, are not acceptable.
2. Slope shall be IV (6%) or flatter if Check Dam is within the traffic clear zone/recovery areas as defined in ADOT Roadway Design Guidelines (303.2 to 303.3 Roadside Recovery Area 2007).
3. Field-adjust sizing and spacing of Rock Check Dams as necessary for traffic safety as well as proper functioning of the drainage facilities.
4. Flatten and re-grade Rock Check Dams to the finished grade, level within the ditch, as soon as practicable after Final Stabilization.
5. Field adjust and correct Rock Check Dam BMP Immediately if it is causing flooding, erosion, and/or affecting roadway safety.
6. Field adjust to ensure the top of the Rock Check Dam is approximately 2/3 height of the estimated ditch bankfull level.
7. When placed separately, the Rock Check Dam BMP pay/ Bid Item shall include all materials used for this BMP at ground preparation, furnishing, installing, maintenance, flattening/grading back to the finished grade, as well as returning the area to an acceptable condition as approved by the Engineer.

ELEVATION ALONG DITCH SLOPE (NTS)
NOTES:
1. Install Stabilized Construction Entrance/Exit Gravel Pad BMP for traffic entering or exiting a construction site where sedimentation, clay, silt or other pollutants can be tracked onto public roads and/or adjacent water bodies, as approved by the Engineer. It may also be applied for construction entrance/exit wind erosion/dust control, as approved by the Engineer.
2. Locate new Construction Entrance(s)/Exit(s) at appropriate project entrance/exit points as determined by the Engineer. Replace Stabilized Construction Entrance/Exit Gravel Pad BMP as needed as project progresses. Replace Rock Mulch materials in drive paths when silt or mud accumulates.
4. Rock Mulch materials shall be fractured/crushed rocks in angular shape and as defined in the Sub-section B60-2.03 of the Standard Specifications. Natural river-run materials, especially rounded natural river rocks are not acceptable.
5. Fluid adjust and correct Construction Entrance/Exit Gravel Pad BMP immediately if it is causing flooding and/or affecting roadway safety.
6. When paid separately, the Stabilized Construction Entrance/Exit Gravel Pad BMP's pay/ bid item shall include all materials used for this BMP at ground preparation, furnishing, installing, final removal, and disposal of this temporary BMP, as well as returning the area to an acceptable condition as approved by the Engineer.
**Rev. Description**

**Cut Limits**
- See Sheet EC2
- See Below Left

**Fill Limits**
- See Above Right
- See Sheet EC4

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**Scales**:
- Horiz: 1" = 40'
- Vert: 1" = 20'

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**Legend**
- Preservation Fencing
- Directional Flow Arrows
- 20' Sediment Log
- 9' Sediment Wattle/Earthen Berm
- Check Dam
- Cut Limits
- Fill Limits
- Seed Mix E/Plus Rock Mulch
- Low Point: Flow
- Exit Project Limits
- Permanent Rip-Rap (Grouted)

---

**SWPPP Notes**:
- Refer to BMP Detail for Installation. Included as Appendix of this SWPPP.
- No drywells are located within 50% of project limits.
- Refer to sheet R2 & Detail K of the project plans for preservation fencing. Refer to demolition plans for preservation fences.
- For erosion/sediment controls refer to Erosion Control Plans. Ropes is shown for reference only and is part of Erosion Control Plan.
- Erosion/Sediment controls shall be placed on all slide slope boundaries only when adjacent slide slope is at lower elevation than the project area and has potential to receive stormwater runoff. Adjacent slopes at higher elevation than the project area do not require protective controls.

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**Pima County Department of Transportation**

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**Key Map**

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**Project**
- Sabino High School Harrison Road Bicycle Lane
- Tucson, AZ 85711
Fill Limits

Cut Limits

Fill Limits

AS BUILT

Rev. Description

PM 0227A 5 5 9

1000 PW PW

5151 East Broadway Blvd. Suite 400

85+00

90+00

HARRISON ROAD

Harrison Rd.

Walnut Tree Dr.

95+00

100+00

HARRISON ROAD

Harrison Rd.

Walnut Tree Dr.

Fill Limits

Cut Limits

Fill Limits

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Walnut Tree Dr.
### Erosion Control Details

#### Notes:

The placement of all Erosion Control Devices listed above will be subject to change and may be adjusted by the Field Engineer in coordination with the Project Designer.

- Erosion Control Quantities will be determined by the Field Engineer.
- Granite mulch quantities consist of material used for check dams, sediment wattles, and sediment logs.

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<th>Check Dam</th>
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See Project Demolition Plans for additional Erosion Control Details.

---

**Scale:**

- Vert.
  - Horiz.

---

About the Project:

- Project Designer: Pim a C oun ty  D e p a r tm e n t o f  T r a n s po r ta tion
- Engineer: DOUG L A S  M IC HA EL
- Date: 04/2014
- Designed by: J  DANA
- Drawn by: D  M O S E K E
- Website: www.stantec.com
- Expiration: 09/30/2017
- Phone: [520] 750-7474
- Fax: [520] 750-7470
- Address: W. O. #4 TELBART, A Z 85711

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**Legend:**

- S A B I N O  H IGH  S C H OO L  H A RR IS ON  R OAD  B IC Y C LE  L AN E
- R E R O S ION  C ON T R O L  P L AN S
- Design Period: 04/2014
- Drawn: 04/2014
- Contract: 0000 PM PPM
- Erosion Control Sheet Number: 0000 PM PPM
### Erosion Control Sheet

**Notes:**
- The placement of all Erosion Control Devices listed above will be subject to change and may be adjusted by the Field Engineer in coordination with the Project Designer.
- Erosion Control Quantities will be determined by the Field Engineer.
- Granite mulch quantities consist of material used for check dams, sediment wattles, and sediment logs.
- Maximum Height of 12 ft unless otherwise specified.

#### Sections

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<th>Check Dam</th>
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<th>Sediment Logs</th>
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**See Project Demolition Plans for additional Erosion Control Details**
The placement of all Erosion Control Devices listed above will be subject to change and may be adjusted by the Field Engineer in coordination with the Project Designer.

Notes:
- Erosion Control Quantities will be determined by the Field Engineer.
- Granite mulch quantities consist of material used for check dams, sediment wattles, and sediment logs.
- Maximum Height of 12 in; unless otherwise specified.

### Quantities

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<th>Section</th>
<th>Check Dam</th>
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<th>Sediment Logs</th>
<th>Preservation Fence</th>
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**Notes:**
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- Granite mulch quantities consist of material used for check dams, sediment wattles, and sediment logs.
- Maximum Height of 12 in; unless otherwise specified.