July 6, 2012

Mr. Mick Hont
Assistant District Engineer
ARIZONA DEPARTMENT OF TRANSPORTATION
TUCSON DISTRICT
1221 S. Second Avenue
Tucson, Arizona 85713-1602

Re: ENVIRONMENTAL CERTIFICATION FOR A T-INTERSECTION AND ASSOCIATED IMPROVEMENTS ALONG STATE ROUTE 83 ADOT ROW
WESTLAND PROJECT NO. 1049.26 700 700

Dear Mr. Hont:

WestLand Resources, Inc. (WestLand) is pleased to provide the attached Environmental Certification on behalf of Rosemont Copper Company (the Applicant) in support of the Arizona Department of Transportation (ADOT) permit application for encroachment within the State Route (SR) 83 right-of-way (ROW).

The Project Area is located approximately 12 miles south of Interstate 10 along SR 83 in Pima County, Arizona (Township 18 South, Range 16 East, Section 22; Figure 1). The Project consists of the construction of a T-intersection and associated improvements (Attachment 1). The planned improvements extend from milepost (MP) 46.63 to MP 47.14. The Project Area construction limits are approximately 0.5 miles long and approximately 90 to 160 feet wide (Figure 2).

The attached Environmental Self-Certification documents the Project’s compliance with the National Historic Preservation Act, Sections 402 and 404 of the Clean Water Act, Endangered Species Act, Arizona Native Plant Law, Clean Air Act, and the Sonoita Scenic Road Corridor Management Plan per ADOT guidelines for encroachment permittees (ADOT, June 2002).

The Applicant will implement the following mitigation measures while work is in progress to ensure compliance with ADOT guidelines and environmental regulations:

- Protected native plants within the construction limits at the site that will be impacted by the project; therefore, the Applicant will provide the Arizona Department of Agriculture notice at least 20 days prior to the start of construction in accordance with the Arizona Native Plant Law.
- The Applicant will prepare a Stormwater Pollution Prevention Plan (SWPPP) that includes the footprint of disturbance.
- The Project will be in compliance with conditions of the Section 401 Water Quality Certification.
- A preliminary jurisdictional determination that includes the Project Area was approved by the US Army Corps of Engineers on November 10, 2010. There will be no impacts to potentially jurisdictional waters as a result of the Project.
If suspected hazardous materials are encountered during construction, work shall cease at that location and ADOT shall be contacted to arrange for proper assessment, treatment, or disposal of those materials.

If previously unidentified cultural resources are encountered during activity related to the construction of the project, the contractor shall stop work immediately at that location and shall take all reasonable steps to secure the preservation of those resources. The Applicant will immediately make arrangements for the proper treatment of those resources.

In compliance with Executive Order 13112 regarding invasive species, all earth-moving and hauling equipment shall be washed at the contractor's storage facility prior to arriving onsite to prevent the introduction of invasive species seed.

In compliance with Executive Order 13112 regarding invasive species, all disturbed soils that will not be landscaped or otherwise permanently stabilized by construction shall be seeded using species native to the project vicinity.

Fugitive dust generated from construction activities must be controlled in accordance with local rules or ordinances.

Should a change in Project limits or additional work outside of the original Project limits be required, WestLand will work with the Applicant to evaluate potential impacts. This may require additional coordination with ADOT, or other agencies, and may affect the project schedule.

Biological Survey Reports and the Preliminary Jurisdictional Determination are on file with Rosemont Copper Company and WestLand to support the findings of the attached Environmental Self-certification. A Class III Survey Report, Native Plant and Noxious Weed Inventory, and Analysis of Visual Resources are submitted with the attached Environmental Self-Certification Evaluation.

If you have any questions or require additional information, please do not hesitate to contact me at (520) 206-9585.

Respectfully,
WestLand Resources, Inc.

[Signature]
Amanda L. Best
Senior Project Manager

ALB:emr
Attachment: Environmental Self-Certification Evaluation
This environmental self-certification is being prepared in support of the Arizona Department of Transportation (ADOT) encroachment permit application for a proposed T-intersection and related improvements along Sonoita Highway (SR 83). The Project is proposed by Rosemont Copper Company. The Project Area is located approximately 12 miles south of Interstate 10 along SR 83 in Pima County, Arizona (Township 18 South, Range 16 East, Section 22; Figure 1). The Project consists of the construction of a T-intersection and associated improvements. The planned improvements extend from milepost (MP) 46.63 to MP 47.14 (Attachment 1). The Project Area construction limits are approximately 0.5 miles long and approximately 90 to 160 feet wide (Figure 2).

The following table summarizes the results of the resource studies to document the Project’s compliance with the applicability environmental laws and regulations.

<table>
<thead>
<tr>
<th>GUIDELINES/REGULATIONS</th>
<th>STATUS AND MITIGATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal/State Guidelines</td>
<td>WestLand has conducted a Class III cultural resources survey of the encroachment area and a report has been submitted to ADOT under separate cover. Portions of two previously recorded, abandoned ca. 1920s road segments associated with AZ EE:2:179(ASM) and a portion of the newly recorded, ca.1950s in-use alignment of SR 83 (also assigned site number AZ EE:2:179[ASM]) are located in the T-intersection APE (Attachment 2).</td>
</tr>
<tr>
<td>1. National Historic Preservation Act</td>
<td>The two historical road segments within the T-intersection APE have been heavily impacted by erosion, vegetation, and road maintenance/debris related to the construction and maintenance of the current SR 83 alignment. It is WestLand’s opinion that the two segments of AZ EE:2:179(ASM) within the T-intersection APE have lost integrity and no longer retain the character of an early rural highway in southern Arizona. As such, these no longer are contributing elements to the eligibility of the site to the National Register of Historic Places. The current alignment of this site (SR 83) was built in 1953–1958, but is being modified by this project for safety concerns that constitute ongoing maintenance and improvement to the road that will have no adverse effect according the Federal Highway Administration, ADOT, and the State Historic Preservation Office interim procedures for the treatment of in-use and abandoned historical roads (FHWA 2002). In addition, the proposed project should not have any adverse effect to the visual beauty of the area or affect the road’s designation as a scenic road.</td>
</tr>
<tr>
<td></td>
<td>WestLand recommends that the encroachment permit be issued as there will be no adverse effect to any eligible historic properties in the T-intersection APE in the ROW. WestLand also provides the general recommendation that all ground-disturbing activities have the potential to unearth archaeological sites or human remains and that any such discoveries must be treated in accordance with Arizona Revised Statute §41-844.</td>
</tr>
<tr>
<td>GUIDELINES/REGULATIONS</td>
<td>STATUS AND MITIGATION</td>
</tr>
<tr>
<td>------------------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>2. Clean Water Act Section 401/404</td>
<td>A preliminary jurisdictional waters determination for the Rosemont Copper Project was completed by WestLand and approved by the Corps on November 10, 2010. This delineation includes areas along the western portion of the Project Area. Upon examination of delineation, it was determined that no features within the Project Area would be considered potentially jurisdictional. The project will not impact waters of the U.S.</td>
</tr>
<tr>
<td>3. Clean Water Act Section 402 (AZPDES Permit)</td>
<td>ADOT requires a Stormwater Pollutant Prevention Plan (SWPPP) be prepared for sites disturbing more than one acre of land. A SWPPP will be prepared by the Applicant for the entire project alignment in accordance with EPA and ADOT standards.</td>
</tr>
<tr>
<td>4. Endangered Species Act</td>
<td>WestLand has conducted extensive biological survey within and in the vicinity of the Project Area. Field reconnaissance was conducted specifically within the Project Area on July 22 and 26, 2011, by two WestLand biologists to identify habitat types in the area and to evaluate the Project Area’s potential to support any proposed, threatened, or endangered species. There are 16 threatened and endangered species listed by the US Fish and Wildlife Service for Pima County. The Project would not adversely affect any proposed or listed species or proposed or designated critical habitat; therefore, no further work is recommended with regard to threatened and endangered species.</td>
</tr>
<tr>
<td>4. Endangered Species Act</td>
<td>One species has reasonable potential to occur in the Project Area, the lesser long-nosed bat (<em>Leptonycteris yerbabuenae</em>), an endangered species. However, no roosting habitat for lesser long nosed bats (caves and abandoned tunnels) occurs within the Project Area. Agaves, a forage plant for lesser long-nosed bats, are present within the Project Area and could provide forage for the lesser long-nosed bat. A total of nine (9) Parry’s agave (<em>Agave parryi</em>) would be impacted by the Project. Due to lack of suitable roosting sites within the Project Area, the limited number of agaves that would be impacted by the Project, and the availability of foraging resources in the general vicinity of the Project Area, the lesser long-nosed bat would not be adversely affected by the Project.</td>
</tr>
<tr>
<td>5. Arizona Native Plant Law</td>
<td>Native woody plant and cactus species afforded protection under the Arizona Native Plant Law in the ROW were inventoried by WestLand on July 22 and 26, 2011. The surveyed land within the ADOT ROW exhibits vegetation of low density, with large portions disturbed the existing roadway and shoulder. Project activities will take place along SR83, the alignment of which is currently maintained and cleared for access. Therefore, loss of plants protected under the ANPL would be minimal (<em>Attachment 3</em>).</td>
</tr>
<tr>
<td>6. Clean Air Act (CAA)</td>
<td>The Applicant and/or contractor will comply with applicable state, local, and federal CAA regulations for dust control and track-out during Project construction. Best management practices, including spraying water for dust control, gravel aprons to minimize track-out, and street sweeping, will be implemented as necessary. Impacts to air quality will be further minimized by installation of temporary traffic control devices to maintain traffic flow within the construction zone. Fugitive dust generated from construction activities must be controlled in accordance with local rules or ordinances.</td>
</tr>
</tbody>
</table>
### Visual Resources

The portion of SR 83 which would be improved lies within the limits of the Patagonia-Sonoita Scenic Road. Designated as a state Scenic Road in 1985, it extends for a total distance of approximately 52.5 miles. The proposed improvement to the existing turnout would be consistent with the management goals of the Patagonia-Sonoita Scenic Road Corridor Management Plan, and would not threaten the designation of the Patagonia-Sonoita highway as a Scenic Road (*Attachment 4*).
CERTIFICATION

To the best of my knowledge and belief, the foregoing information is true and correct and accurately represents the site conditions and the expected nature of Project impacts, based on information provided by the Project proponent at the time referenced analyses and studies were conducted. Mitigation measures are listed in accordance with applicable laws. The Applicant has been informed of the required mitigation and is aware that changes to the alignment of project activities may require additional survey.

WestLand Resources, Inc., Project Manager

Mitigation and monitoring requirements presented in this letter will be implemented in accordance with the various laws and policies in effect as listed above. If work is required outside the boundaries as described, the Applicant shall ensure that the required survey work be completed in those areas.

Rosemont Copper Company, Environmental Manager

Attachments:
- Figure 1. Vicinity Map
- Figure 2. Aerial Overview of Project Area
- Attachment 1. Project Plans for the State Route 83 Rosemont Copper T-Intersection
- Attachment 2. Class III Cultural Resources Survey Report
- Attachment 3. Native Plant and Noxious Weed Inventory
- Attachment 4. Analysis of Visual Resources
FIGURES
Approximate Scale 1 Inch = 10 Miles

Construction Limits in ADOT ROW

T18S, R16E, Portion of Section 22,
Pima County, Arizona,
Empire Ranch USGS 7.5' Quadrangle

ROSEMONT COPPER COMPANY
STATE ROUTE 83 ADOT ROW
Environmental Certification

VICINITY MAP
Figure 1
STATE OF ARIZONA
PIMA COUNTY
ADOT TUCSON DISTRICT
PROJECT PLANS

STATE HIGHWAY
SONOITA-MOUNTAIN VIEW HIGHWAY
SR 83

NEW INTERSECTION AND ROADWAY IMPROVEMENTS
RIGHT-OF-WAY ENCROACHMENT PERMIT APPLICATION

ROSEMONT COPPER T-INTERSECTION
MILEPOST 46.63 to 47.14
GENERAL NOTES

1. All work shall be constructed in accordance with the ADOT 2008 Standard Specifications for Road and Bridge Construction along with all current revisions.

2. The roadway plans have been designed utilizing the May 2007 ADOT Construction Design Standard Drawings (IC-Series) along with all current revisions.


4. The project roadway shall be striped by the Contractor in accordance with the ADOT 2002 Striping and Marking Standard Drawings (MS-Series) along with all current revisions, and the pavement marking plans.

5. The information on these drawings showing the type, size and location of existing utilities is based on the best information available. The Contractor shall verify the exact location and depth of all underground facilities.

6. Delineators, object markers and mile post markers shall be removed and reset as required. No direct measurement or payment will be made for this work.

7. All Right-of-Way markers, disturbed, destroyed or removed shall be replaced by a R.L.S., per ADOT Std. C-02.40, at the Contractor's expense, except as noted on the project plans.

8. The average project elevation is 4,486'.

9. New Right-of-Way and easements are not required.

10. All disturbed areas shall be seeded per ADOT Standard Specifications.

11. Slope rounding shall be applied per ADOT Std. C-21.10, at the Contractor's expense, except as noted on the project plans.

12. All work not in conformance with these plans and ADOT Standard Specifications shall be removed at the Contractor's expense.

13. All disturbed areas shall be seeded per ADOT Standard Specifications.

14. ADOT may make periodic site inspections and reserves the right to revise the location of sediment trapping devices and the types of structural controls as the field conditions dictate. The Contractor shall agree to implement any such revisions at the request of ADOT at no additional cost to the owner.

15. The roadway shall remain open to traffic at all times during construction.

16. Per ADOT As-Bulits, S-249/813, Sheet 2 of 15, the existing pavement section is:

2' AC on 3' ABC on 9' select material (SN=1.76).

17. Stakeing is based on ADOT As-Built Plans S-249/813 - Sheets 4 of 15 and 5 of 15.

18. Sawcutting the existing pavement will be required where new asphaltic concrete (AC) is to match existing bituminous surfaces. Sawcuts shall be made to a minimum depth of 3-inches and in all cases deep enough to ensure a neat vertical joint. There will be no separate measurement or direct payment for saw cutting and/or when cutting. The cost will be considered to be included in the cost of related items of work as called for in the bidding schedule.

19. ADOT requires striping obliteration to be tested for lead based paint by the Contractor before the right-of-way prior to start of construction.

20. All excavation and trenching activity shall conform to OSHA safety standards.

LENGTH OF PROJECT

Sta 164+75.00 to 191+30.00 = 2,655.00'

Gross & Net Length = 2,655.00' - 0.51 Miles

Mile Post: 46.63 to 47.14

DESIGN DATA

2010 ADT = 2,467
2030 ADT = 4,175
SR 83 Design Speed = 65 MPH
SR 83 Posted Speed = 55 MPH

Design Vehicle = MW-67

MIDPOINT OF PROJECT

State Plane Coordinates

X = 079,000 Y = 312,800

INDEX OF SHEETS

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<td>Design Sheet &amp; New Pipe Summary Sheet</td>
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EARTHWORK FACTORS

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<tr>
<th>Station</th>
<th>Shrink/Swell</th>
<th>Ground Compaction</th>
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<tr>
<td>163+65 to 192+30</td>
<td>105 Shrink</td>
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SOIL VALUES

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<th>Station</th>
<th>pH</th>
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<td>187+00</td>
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EARTHWORK QUANTITIES

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<td>Roadway Excavation (Total)</td>
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<td>Detour</td>
<td>5,765</td>
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<td>SR 83 Access Rd</td>
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<td>Required Excavation Shrink</td>
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<td>Drainage Excavation</td>
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<tr>
<td>Shrink</td>
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<td>* Pipe Excavation</td>
<td>357</td>
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<tr>
<td>Shrink</td>
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<tr>
<td>* Pipe Backfill</td>
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<td>Embankment (Total)</td>
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<td>Detour (Incl Gnd Comp)</td>
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<td>SR 83 (Incl Gnd Comp)</td>
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<td>Access Rd (Incl Gnd Comp)</td>
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<td>Waste</td>
<td>1,624</td>
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</tbody>
</table>

* For Information Purposes Only
NOTES:
1. Cut and fill slope applications are typical. See plan sheets for specific locations and applications.
2. Match Existing Embankment Slope and new 6:1 Slope at beginning and Ending Sawcut Locations Lt & Lt.

▲ Shoulder Taper (65')
Sta 164+74.50 to 165+45.00
Transition cross slopes:
Lt: -0.01871 ± to -0.020Yft
Rt: -0.028Art ± to -0.020/ft

▲ Left Turn Lane Taper (390')
Sta 164+75.00 to 168+65.00

▲ Left Turn Lane Gap (140')
Sta 168+65.00 to 170+05.00
Left Turn Lane (465')
Sta 170+05.00 to 174+70.00

* See Slope Exception Detail, Sheet TY5
NOTES:
1. Cut and fill slope applications are typical. See plan sheets for specific locations and applications.
2. Sta 174+20.00 to Sta 175+80.00 SR 83 Intersection with Rosemont Copper Primary Access Road
   Primary Access Road E = Sta 175+00.00
   See Plan Sheets

TYPICAL SECTION
Sta 170+50.00 to 174+20.00

TYPICAL SECTION
Sta 174+20.00 to 175+80.00

ADOT Std. C-02.20
Slopes, 4:1 max
NOTES:

1. Cut and fill slope applications are typical. See plan sheets for specific locations and applications.

2. Sta 174+20.00 to Sta 175+80.00
   SR 83 Intersection with Rosemont Copper Primary Access Road
   Primary Access Road = Sta 175+00.00
   See Plan Sheets

   a. Acceleration Lane
      Sta 175+30.00 to 187+40.00

   b. Right Turn Lane Storage (145')
      Sta 175+30.00 to 180+05.00
      Right Turn Lane Taper (140')
      Sta 180+05.00 to 181+45.00

TYPICAL SECTION
Sta 175+80.00 to 180+05.00
NOTES:

1. Cut and fill slope applications are typical. See plan sheets for specific locations and applications.

- Acceleration Lane (1,210')
  Station 175+30.00 to 187+40.00

- Right Turn Lane Taper (140')
  Station 180+05.00 to 181+45.00

TYPICAL SECTION

Station 180+05.00 to 181+45.00

Pavement Structural Section No. 1

Profile Grade 0.020\% Yrt Slopes, 4:1 Max

ADOT Std C-02.20

TYPICAL SECTION

Station 181+45.00 to 187+40.00

Pavement Structural Section No. 1

Profile Grade 0.020\% Yrt Slopes, 4:1 Max

ADOT Std C-02.20
NOTES:

1. Cut and fill slope applications are typical. See plan sheets for specific locations and applications.

2. Match Existing Embankment Slope and new 6:1 Slope at Beginning and Ending Sawcut Locations Rt & Lt.

3. Side slopes shall be graded beyond pavement tie in order to allow side ditches to drain. Grading shall continue to Sta 194+002 Lt and 192+202 Rt.

4. Existing boulders and posts within clear zone shall be relocated to a position outside clear zone. See Sheet RD.

**TYPICAL SECTION**

Site 187+40.00 to 191+30.00

**SLOPE EXCEPTION DETAIL**

SR 83 Sta 169+599 to 171+877 Lt

**NOTES:**

- Lane Drop Taper (390')
  - Sta 187+40.00 to 191+30.00
- Shoulder Taper (65')
  - Sta 190+65.00 to 191+30.00
- Transition cross slopes to match existing pavements:
  - Lt: -0.020'/ft to -0.012'/2
  - Rt: -0.020'/ft to -0.012'/2
- Pullout Area Grade: Varies, 0.020'/ft to 0.030'/ft

**PROJECT**

SR 83 Rosemont Copper T-Intersection
**NOTES:**

1. Cut and fill slope applications are typical. See plan sheets for specific locations and applications.

2. State Route 83 and Rosemont Copper Primary Access Road Intersection Station Equation:
   - SR 83 Sta 17+23.40 + Access Road Sta 20+00.00
   - See Plan Sheets

3. Access Road Station 19+14± to 19+23±, New 8 Unit Cattle Guard, ADOT Std Dtl C-11.10

4. Access Road Station 18+14± to 19+14±
   - Graded Shoulder per ADOT Std Dtl C-11.10.

5. Project waste material may be used to build up the outside slopes between Sta 12+50 and Sta 19+00 at the direction of the Engineer.

**Graded Cross Slope**

- Sta 12+50 to 17+17.34
  - Lt: -4.00%
  - Rt: +4.00%
- Sta 17+17.34 to 19+00.00
  - Lt: -4.00% to 0.00%
  - Rt: +4.00% to 0.00%

**Transition Cross Slope to Match New SR 83 Roadway Grade.**

- Lt: 0.00% to -1.77%
- Rt: 0.00% to +1.77%

**Access Road Survey & Construction**

**TYPICAL SECTION**

- Sta 12+50.00 to 18+14.00
  - Access Road Survey & Construction E
  - Varies, 40' - 40.6'

**TYPICAL SECTION**

- Sta 18+14.00 to 19+00.00
  - Access Road Survey & Construction E
  - Varies, 40.0' - 40.6'

**TYPICAL SECTION**

- Sta 19+23± to 19+70.00
  - Match Existing Ground (Typ)
  - Varies, 43.2' - 80.0'

**TYPICAL SECTION**

- Sta 19+00.00 to 19+14±
  - New Concrete Header (Typ)
  - See Sheet 051

**TYPICAL SECTION**

- Sta 19+15± to 19+70.00
  - Outside Shoulder Treatment (Typ)
  - See Detail Sheet 051

**Pavement Structural Section No. 2**

- Match Existing Ground (Typ)
  - See Sheet 051

**Pavement Structural Section No. 1**

- New Concrete Header (Typ)
  - See Sheet 051
LONGITUDINAL BAR DETAIL

SIDE VIEW-CROSS DRAINAGE TYPE

SIDE VIEW-PARALLEL DRAINAGE TYPE

METAL END SECTION FOR CIRCULAR PIPES

METAL END SECTION FOR ARCHED PIPES

GENERAL NOTES
1. The size, shape and type of end section, whether parallel or cross drainage, shall be shown on the plans.
2. A longitudinal bar is required for cross-drainage end sections when the span (W) is greater than 30". Additional longitudinal bars shall be required if spacing exceeds 30" on larger end sections.
3. Safety and longitudinal bars are not required on 30" and smaller cross drainage end sections.
4. Galvanized Steel Rod or #4 Galvanized Rebar 5/8" (Approximately)
5. Top of Sloped End Section
6. These Sizes Are Not Normally Used for Culverts by ADOT
7. Headwalls Are Normally Required For Pipe Sizes 48" and Larger

ARIZONA DEPARTMENT OF TRANSPORTATION
INTERNATIONAL TRANSPORTATION DIVISION
ROADWAY GROUP PLANS DETAIL

DETAIL A

PIPE, METAL SAFETY END SECTION

CROSS-DRAINAGE TYPE END SECTION

PARALLEL-DRAINAGE TYPE END SECTION

For All Concrete Pipes

Type 3 Connection

For 30" Diameter and Circular Pipes 15-24" Larger Circular Pipes, and All Arched Pipes

Type 2 Connection

Type 1 Connection

Top of Sloped End Section

These Sizes Are Not Normally Used for Culverts by ADOT

Headwalls Are Normally Required For Pipe Sizes 48" and Larger
1-INTERSECTION

New 8 Unit Cattle Guard
ADOT Std Dtl C-I/JO

Sta 175+00.00, 100.00' Lt
End Header
Elev=4485.72

ECR 174+80.00, 86.00' Lt
Begin Header
Elev=4490.72

Sta 174+79.30
76.88' Lt
Match New Cattle Guard
Elev=4486.88

15' x 15' Future Sign Location (typ)
To Be Determined In The Field

Notes:
1. See Paving Sheet RD2 and RD4
   for additional information.

New 8 Unit Cattle Guard
ADOT Std Dtl C-I/JO

New B&W Fence, Type 1
ADOT Std Dtl C-12.10

AC - Pave Str Sec 1

Toe of Fill (typ)

PCCP - Pave Str Sec 2
See Detail C, Sheet DT3, for Joint Layout Plan

AC - Graded Pavwy

Edge of Pavement

Sta 174+79.30, 76.88' Lt
Match New Cattle Guard
Elev=4486.88

20' 6:1

20'

Sta 175+00.00, 100.00' Lt,

20' 6:1

Sta 174+20.00, 100.00' Lt
End Header
Elev=4485.72

ECR 175+20.00, 94.00' Lt
Begin Header
Elev=4486.43

Sta 175+22.48, 76.91' Lt
Match New Cattle Guard
Elev=4486.88

BCR 175+20.00, 85.91' Lt
Begin Header
Match New Cattle Guard
Elev=4486.43

End Header

Elev=4485.72

BCR 175+20.00, 86.00' Lt
Begin Header
Match New Cattle Guard
Elev=4486.88

ECR 175+80.00, 34.00' Lt
Elev=4487.33

Sta 176+30 Lt
End Slope Transition

Edge of Pavement (typ)

Sta 176+50.00, 34.00' Li

End Slope Transition

Edge of Pavement (typ)

Sta 176+50.00

Sta 176+50.00, 26.00' Lt
Elev=4486.5

Sta 176+50.00, 26.00' Li
Elev=4486.49

Sta 176+50.00

Sta 176+50.00, 26.00' Lt
Elev=4487.17

Sta 176+50.00

Sta 176+50.00, 26.00' Li
Elev=4487.98

Sta 176+50.00

Sta 176+00.00 SR 83
Sta 20+00.00 Access Rd E

SR 83 Survey & Construction E

SR 83 Paving Sheet

POMAS

DETAIL SHEET

PROJECT

PRELINARY

NAME

NOT FOR

CONSTRUCTION

OR RECORDING

DESIGN

DRAWN

DETAIL SHEET

ROUTE LOCATION

SR 83 Rosemont Copper T-Intersection

PROJECT

SHEET 1 OF 4

1106 50 116 04

1106 49 116 84
1. PCCP joints constructed per ADOT Std DN C-07.01 and ADOT Std Spec Section 401.
2. TWP joints are perpendicular to and measured at roadway centerline.

Notes:

- New 8 Unit Cattle Guard
- See Paving Plans
- Access Road Survey & Construction
- See Paving Plans
- Access Road, AC Pavt and Header Curbs
- See Paving Plans
- Access Road Graded Shdls (typ)
- See Paving Plans
- SR 83 Survey & Construction
- See Sheet DS1 Shldr Dtl
- Route 7 Location
- SR 83 Roseraton Copper T-Intersection
- SHEET D5 OF 6

Detail C
Joint Layout Plan
ECR 30+46.00, 10' Rt
Elev = 4478.17

Sta 30+95.00
End Graded Turnout

Sta 30+50.00
Turnout

Sta 30+50.00
New Pipe

RIPRAP GRADATION TABLE
(D50=6)

Pipe shall conform to the requirements of Section 913 of the ADOT Standard Specifications and shall be in accordance with the following table:

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Percent Passing</th>
</tr>
</thead>
<tbody>
<tr>
<td>12&quot;</td>
<td>90-100</td>
</tr>
<tr>
<td>9&quot;</td>
<td>70-85</td>
</tr>
<tr>
<td>6&quot;</td>
<td>30-50</td>
</tr>
<tr>
<td>4&quot;</td>
<td>0-15</td>
</tr>
<tr>
<td>2&quot;</td>
<td>0-5</td>
</tr>
</tbody>
</table>

SR 83 Survey & Construction

Sta 30+26.00
Begin 10' ± Road
Type A

Sta 30+56.00
End Acto
Begin Graded Turnout Taper to Match Ext Road

New Turnout Construction

New End Section (typ)
ADOT SH 13-25

New 6' x 10' x 10' Ditch Lt
ADOT Ditch C-3.01

New Riprap Splash Pad
D50=6, Riprap=3 Cr

New 18x30 CMP
0° Skew

New 24x82 CMP
0° Skew

New 6' x 10' Ditch Lt

New 24x82 CMP
0° Skew

New 6' x 10' Ditch Lt

New 6' x 10' Ditch Lt

New 6' x 10' Ditch Lt

New 6' x 10' Ditch Lt

New 6' x 10' Ditch Lt

New 6' x 10' Ditch Lt

New 6' x 10' Ditch Lt

New 6' x 10' Ditch Lt

New 6' x 10' Ditch Lt
NOTES:
Riprap dimensions per ADOT Std. C-03.10

Riprap shall conform to the requirements of Section 913 of the ADOT Standard Specifications and shall be in accordance with the following table:

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Percent Passing</th>
</tr>
</thead>
<tbody>
<tr>
<td>12&quot;</td>
<td>90-100</td>
</tr>
<tr>
<td>8&quot;</td>
<td>70-85</td>
</tr>
<tr>
<td>6&quot;</td>
<td>50-55</td>
</tr>
<tr>
<td>4&quot;</td>
<td>30-50</td>
</tr>
<tr>
<td>2&quot;</td>
<td>15-25</td>
</tr>
<tr>
<td>1&quot;</td>
<td>0-5</td>
</tr>
</tbody>
</table>

**RIPRAP GRADATION TABLE (D50=6")**

<table>
<thead>
<tr>
<th>Sta 186+99.06</th>
<th>Existing 24&quot; x 41 2/3 CMP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sta 186+96.56</td>
<td>Remove Riprap Splash Pad</td>
</tr>
</tbody>
</table>

**WARNING:**
Existing Fiber Optic Line Protect In Place

**NOTICE:**
ExsItIng R/W Fence Remain

**PROJECT:**
Rosemont Copper T-Intersection

**DATE:**
09-08-11

**PRELIMINARY DESIGN NOT FOR RECORDING OR CONSTRUCTION**
FINISH GRADE

1. TYPE 'A' TO BE USED AT INTERSECTIONS OF MAJOR STREETS & COLLECTOR STREETS, AND AT OTHER SPECIAL POINTS IF REQUIRED BY ENGINEER, AS SHOWN ON PLANS.

2. TYPE 'B' TO BE USED AT INTERSECTION OF STREET CENTERLINES (EXCEPT WHERE TYPE 'A' IS SPECIFIED), CORNERS OR CHANGES IN ALIGNMENT OF SUBDIVISION BOUNDARIES (WHEN THEY FALL IN PAVEMENT), AND P.T.'S OF CURVES. WHEN P.I. FALLS IN PAVEMENT, THEN THE P.I. SHALL BE MONUMENTED.

3. TYPE 'C' TO BE USED AT CORNERS OF, AND CHANGE IN ALIGNMENT OF, SUBDIVISION BOUNDARIES WHERE CORNERS OR CHANGE POINTS FALL OUTSIDE OF PAVED AREAS OR ALLEYS.

4. LETTERS TO BE APPROX. 1/32" WIDE & 1/32" DEEP.

5. USE STANDARD WROUGHT IRON WASHER 3" x 11/64" THICK WITH 1-3/8" HOLE.

6. CAP TO BE CONSTRUCTED OF RED BRASS OR BRONZE.

7. FRAME & COVER TO INCLUDE CHAIN PER DET. 270 (OPTIONAL PER AGENCY REQUIREMENTS.)

CAP DETAIL

FOR UNPAVED STREETS & ALLIES

8" C.I. FRAME AND COVER

MEDIUM BROOM FINISH WITH RADIALLY SCORED MARKS (4 MIN.)

REMOV BURRS AND SAND FROM TOP

CLASS 'AA' CONCRETE AS PER SECT. 725

STD. WROUGHT WASHER

BRASS CAP, SEE DETAIL

CLASS 'B' CONCRETE AS PER SECT. 725

SEE DETAIL 120-1

SURVEY MARKER

NEW SURVEY MARKER
1. CURVE DATA

PI Sta 153+07.29
Main Curve
D = 21°38'50" Rt
D = 6°00'00" Lt
R = 954.93'
L = 360.79'
T = 182.57'
Ext = 17.30
Super = NA

SR 83 MP 46.63
Sta 165+22.00
BEGIN PROJECT

Quarter Corner / End Stone

Sta 158+99.24, 500.68' Lt
Find 6" Pin with Aluminum "Psomas Control" Tag
Elev = 4495.53

Sta 154+85.44, 100.43' Rt
Find R/W Mark, Angle Iron
Elev = 4507.63

Sta 154+85.53, 100.00' Rt
Find R/W Mark, Angle Iron
Elev = 4509.61

Remain Sta 175+99.36, 100.46' Lt

Quarter Corner / Find Stone

2. CURVE DATA

PI Sta 199+16.38
Main Curve
D = 20°56'30" Rt
D = 3°00'00" Lt
R = 1909.86'
L = 698.06'
T = 352.97'
Ext = 32.34
Super = NA

SR 83 MP 47.14
Sta 191+30.00
END PROJECT

Quarter Corner / End Stone

Sta 175+99.36, 100.46' Lt
End R/W Marker, Angle Iron
Elev = 4480.18

Remain Sta 174+99.36, 100.00' Rt

Quarter Corner / End Stone

Sta 158+99.24, 500.68' Lt
Find 6" Pin with Aluminum "Psomas Control" Tag
Elev = 4495.53

Sta 154+85.44, 100.43' Rt
Find R/W Mark, Angle Iron
Elev = 4507.63

Sta 154+85.53, 100.00' Rt
Find R/W Mark, Angle Iron
Elev = 4509.61

Remain Sta 175+99.36, 100.46' Lt

Quarter Corner / Find Stone

Sta 168+62.54, 624.69' Rt
Find 60D Nall Panel Point
Elev = 4507.63

Sta 165+22.00
BEGIN PROJECT

Approximate Mid Section Line

Basis of Elevation
Sta 153+07.29, 100.00' Rt
Find R/W Marker, Angle Iron
Elev = 4493.28

Remain Sta 154+85.53, 100.00' Rt
Find R/W Mark, Angle Iron
Elev = 4509.61

Remain Sta 174+99.36, 100.00' Rt

Remain Sta 174+99.45, 100.00' Rt
Find R/W Marker, Angle Iron
Elev = 4493.28

Remain Sta 174+99.36, 100.46' Lt

Remain Sta 174+99.04, 100.46' Lt

Remain Sta 174+99.45, 100.00' Rt
Find R/W Marker, Angle Iron
Elev = 4502.51

Remove & Replace

NOT FOR HORIZONTAL CONTROL SHEET
CONSTRUCTION OR RECORDING
1. Existing boulders (6) and posts (2) to be relocated to a location outside 30 foot clear zone. Clear zone is 48 feet measured from SR 83 survey & construction centerline.

Notes:

1. Existing boulders (6) and posts (2) to be relocated to a location outside 30 foot clear zone. Clear zone is 48 feet measured from SR 78 survey & construction centerline.
WARNING: Existing Fiber Optic Line Protect In Place

STA 191+30
END PROJECT
Sawcut & Match Ext Pint

Sta 191+30.00, 14.00' Lt
End Taper

Sta 187+40.00, 26.00' Lt
Begin 325' Taper
End Taper, Begin 65' Taper

Sta 190+65.00, 21.00' Lt
End Taper, Begin 65' Taper

Sta 186+99.06
New 24" CMP
Remove Ext CMP
See DR D2, Sheet D75

SR 83 Survey & Construction

Sta 190+65.00, 21.00' Rt
End Taper, Begin 65' Taper

Sta 187+40.00, 26.00' Rt
Begin 325' Taper

Sta 190+65.00, 21.00' Rt
End Taper

Sta 191+30.00, 14.00' Lt
End Taper

Match Ext Pint Grade
Elev=4459.71±

Finished E Grade

1180' VC
SDs-668.55

STA 191+30
END PROJECT

Match Ext Pint Grade
Elev=4459.71

PI (844-50.13)
Elev=4465.46
30' DR 46.55

SR 83 Survey & Construction

Rosemont Copper T-Intersection
PAVEMENT MARKING NOTES:

1. All work to be done within the ADOT Right-of-Way shall conform to the current edition of the ADOT Signing and Marking Standard Drawings.

2. It is the Contractor's responsibility to ensure that the final surface course is placed so that the striping is offset 1 foot center of any construction joints, unless otherwise directed by the Engineer.

3. The dimensions shown to pavement striping are to the center of the striping or, in the case of double striping, to the center of the double striping.

4. At the completion of the final pavement surface, centerlines, lane lines, edge lines, and stop bar shall be striped with one application of standard reflectorized traffic paint at the locations of the permanent striping. The paint shall have a maximum thickness of 10 mils wet (15 mils dry).

5. The final striping shall be 90 mil (0.090 inch thick) alkyd extruded thermoplastic reflectorized striping placed over the existing striping approximately 30 calendar days after completion of the final pavement surface, or as directed by the Engineer. All other markings shall be applied at the same time.

6. The final stop bar, pavement arrows, and "ONLY" legends shall be white 90 mil (0.090 inch thick) alkyd extruded thermoplastic reflectorized markings.

7. All reflective raised pavement markers shall have an abrasion resistant coating on the face of the prismatic reflectors and shall conform to the details of ADOT Std. DWG. M-10. They shall be installed with a translucent adhesive which on the ADOT approved products list.

8. All reflective raised pavement markers shall be installed so that the reflective face of each marker is facing the direction of traffic and is perpendicular to the direction of traffic flow.

9. Where raised pavement markers are placed between double yellow striping, they shall be centered in the 6 inch gap between the lines, except as indicated otherwise on the plans. For broken white or yellow striping, the markers shall be placed to align with the broken striping. Where raised pavement markers are placed along solid white striping, the nearest edge of each marker shall be offset 2 inches from the nearest edge of striping on the side of the through lane.

10. The contractor shall clean the roadway surface to the satisfaction of the Engineer, by sweeping and air-jet blowing, immediately prior to the placement of all pavement markings. The roadway surface shall be dry and the air and pavement temperatures shall not be less than 55°F for the placement of thermoplastic striping.

11. The Contractor shall notify the Engineer two weeks prior to the application of the final course to schedule a "No Passing Zone" Survey by State forces. The "No Passing Zone" Survey shall supersede the permanent pavement marking plans. The Contractor shall not apply the pavement markings on the final pavement surface until the Engineer approves the layout for the permanent pavement markings, including any adjustments based upon the "No Passing Zone" Survey. The "No Passing Zone" crew may be reached at 602 228-0889, 602 228-2508, or 602 228-4932.

12. When strip obliteration becomes necessary, it shall be accomplished by approved methods. Pasting over striping, removal of pavement, and overlaying pavement do not constitute strip obliteration.

13. Three working days prior to final striping layout, please contact ADOT Tucson Regional Signing & Striping Section at 520-838-2828, Xavier Casillas or Gary Hack, to coordinate the layout inspection.

14. The pavement marking drawings are schematic only. The Contractor shall follow all dimensions and details when installing pavement markings.

15. The Engineer may modify the plans in regards to pavement marking.

SIGNING NOTES:


2. The sign locations and the post lengths are approximate. The Contractor shall verify the sign locations and actual post lengths with the Engineer prior to installing signs.

3. The bottom of each sign shall be at least 7 feet above the nearest edge of pavement and at least 7 feet above the ground under the sign.

4. The Contractor shall install the new signs so the nearest edge of each sign is offset 12 feet from the nearest edge of pavement, except as otherwise indicated.

5. All signs shall be fabricated of flat sheet aluminum as indicated in the ADOT Standard Specifications Section 608.

6. All retroreflective sheathing on all new signs, mile post markers, object markers, and delineators shall meet the criteria established for Type IX or XI sheeting in accordance with ASTM D4956. All yellow signs shall have fluorescent sheathing.

7. All new ground-mounted signs shall be installed on new square tube posts with foundations in accordance with ADOT Standard Drawing S-1.

8. Where indicated in the sign summary, the Contractor shall install horizontal stringers (swing channel type) in accordance with ADOT Standard Drawing S-3.

9. All bolts used to install signing shall have hex heads, not slotted heads, and shall not be painted.

10. The Contractor shall use only cadmium plated or zinc plated steel washers on iron bolts and white plastic washers on each bolt head and the face of the sign panel. The washers shall not be painted, the bolts shall be painted.

11. All bolts used to install signing shall have hex heads, not slotted heads, and shall not be painted.

12. Three working days prior to final painting layout, please contact ADOT Tucson Regional Signing & Striping Section at 520-838-2828, Xavier Casillas or Gary Hack, to coordinate the layout inspection.

13. Shop drawings will not be required.

14. The Engineer may modify the plans in regards to signing.

APPROXIMATE PAVEMENT MARKING QUANTITIES

<table>
<thead>
<tr>
<th>ITEM</th>
<th>UNIT</th>
<th>QUANTITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>4&quot; White</td>
<td>L.F.</td>
<td>8,722</td>
</tr>
<tr>
<td>4&quot; Yellow</td>
<td>L.F.</td>
<td>7,144</td>
</tr>
<tr>
<td>Standardized Reflectorized Traffic Paint</td>
<td>Single Arrow (Std. DWG. M-10)</td>
<td>Each 4</td>
</tr>
<tr>
<td>Permanent Thermoplastic Pavement Marking</td>
<td>Single Arrow (Std. DWG. M-10)</td>
<td>Each 4</td>
</tr>
<tr>
<td>White 90 MI Alkyd Extruded Thermoplastic Pavement Markers</td>
<td>Single Arrow (Std. DWG. M-10)</td>
<td>Each 4</td>
</tr>
<tr>
<td>Primer-Seeder for PCCP Thermoplastic</td>
<td>Symbol/Logo</td>
<td>Each 5</td>
</tr>
<tr>
<td>Removal of Curbing Compound From PCCP</td>
<td>Symbol/Logo</td>
<td>Each 5</td>
</tr>
<tr>
<td>Raised Pavement Markers</td>
<td>Type D</td>
<td>Each 126</td>
</tr>
<tr>
<td></td>
<td>Type G</td>
<td>Each 73</td>
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</table>

* Pavement marking quantities reflect 4" equivalents.
### SIGN SUMMARY

<table>
<thead>
<tr>
<th>Sign No.</th>
<th>Location ±</th>
<th>Offset (ft.)</th>
<th>Sign Color</th>
<th>Width (In.)</th>
<th>Height (In.)</th>
<th>Sign Area (sq. ft.)</th>
<th>Sign Bid Item No.</th>
<th>Post Type</th>
<th>Number of Posts</th>
<th>Number of Foundations</th>
<th>Total Post Length (ft.)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>SR 83 Sta 160+92</td>
<td>12 Rt</td>
<td>W1-5L Yellow</td>
<td>30</td>
<td>30</td>
<td>6.25</td>
<td>IX or XI</td>
<td>6080005</td>
<td>25</td>
<td>2</td>
<td>2</td>
<td>28</td>
</tr>
<tr>
<td>S2</td>
<td>SR 83 Sta 165+19</td>
<td>12 Lt</td>
<td>W3-5bAZ Yellow</td>
<td>48</td>
<td>12</td>
<td>4.00</td>
<td>IX or XI</td>
<td>6080005</td>
<td>25</td>
<td>2</td>
<td>2</td>
<td>26</td>
</tr>
<tr>
<td>S3</td>
<td>SR 83 Sta 167+25</td>
<td>12 Lt</td>
<td>D1-1 Green</td>
<td>36</td>
<td>36</td>
<td>9.00</td>
<td>IX or XI</td>
<td>6080005</td>
<td>22</td>
<td>2</td>
<td>2</td>
<td>See Note 4</td>
</tr>
<tr>
<td>N1</td>
<td>SR 83 Sta 169+17</td>
<td>12 Rl</td>
<td>D5-7 Blue</td>
<td>60</td>
<td>24</td>
<td>10.00</td>
<td>IX or XI</td>
<td>6080005</td>
<td>25</td>
<td>2</td>
<td>2</td>
<td>24</td>
</tr>
<tr>
<td>S4</td>
<td>SR 83 Sta 173+29</td>
<td>12 Lt</td>
<td>D5-7 Blue</td>
<td>60</td>
<td>24</td>
<td>10.00</td>
<td>IX or XI</td>
<td>6080005</td>
<td>25</td>
<td>2</td>
<td>2</td>
<td>24</td>
</tr>
<tr>
<td>T1</td>
<td>SR 83 Sta 174+57</td>
<td>15 Lt</td>
<td>R1-1 Red</td>
<td>36</td>
<td>36</td>
<td>9.00</td>
<td>IX or XI</td>
<td>6080005</td>
<td>25</td>
<td>1</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>T2</td>
<td>SR 83 Sta 174+69</td>
<td>12 Rt</td>
<td>W1-7 Yellow</td>
<td>48</td>
<td>24</td>
<td>8.00</td>
<td>IX or XI</td>
<td>6080005</td>
<td>25</td>
<td>2</td>
<td>2</td>
<td>24</td>
</tr>
<tr>
<td>S5</td>
<td>SR 83 Sta 175+95</td>
<td>12 Lt</td>
<td>R3-5R White</td>
<td>30</td>
<td>36</td>
<td>7.50</td>
<td>IX or XI</td>
<td>6080005</td>
<td>25</td>
<td>2</td>
<td>2</td>
<td>26</td>
</tr>
<tr>
<td>N2</td>
<td>SR 83 Sta 177+49</td>
<td>12 Rt</td>
<td>W4-2L Yellow</td>
<td>36</td>
<td>36</td>
<td>9.00</td>
<td>IX or XI</td>
<td>6080005</td>
<td>25</td>
<td>2</td>
<td>2</td>
<td>28</td>
</tr>
<tr>
<td>S6</td>
<td>SR 83 Sta 180+05</td>
<td>12 Lt</td>
<td>R3-5R White</td>
<td>48</td>
<td>36</td>
<td>9.00</td>
<td>IX or XI</td>
<td>6080005</td>
<td>25</td>
<td>2</td>
<td>2</td>
<td>26</td>
</tr>
<tr>
<td>S7</td>
<td>SR 83 Sta 184+00</td>
<td>12 Lt</td>
<td>160-2y</td>
<td>30</td>
<td>30</td>
<td>10.00</td>
<td>IX or XI</td>
<td>6080005</td>
<td>25</td>
<td>2</td>
<td>2</td>
<td>26</td>
</tr>
<tr>
<td>N3</td>
<td>SR 83 Sta 184+00</td>
<td>12 Rt</td>
<td>D10-2AZ</td>
<td>30</td>
<td>30</td>
<td>10.00</td>
<td>IX or XI</td>
<td>6080005</td>
<td>25</td>
<td>1</td>
<td>1</td>
<td>7</td>
</tr>
</tbody>
</table>

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**SIGN SUMMARY NOTES:**

1. "Lt" & "Rt" refer to the direction of increasing stationing and/or increasing mile posts.
2. The Contractor shall remove all existing signing (sign panels, sign posts, and foundations), mile posts, object markers, and delimiters on SR 83 between Sta 163+65 and Sta 192+30 unless noted otherwise.
3. For each existing Adopt a Highway sign Panel, the Contractor shall relocate the existing sign panel on new sign supports at the location indicated.
4. The Contractor shall install horizontal stringers (wing channel type) in accordance with ADOT Standard Drawing S-3 for all new guide signs (signs W3 and E2).
5. All yellow signs shall have Fluorescent Sheeting.

---

**Remarks:**

- Install new Type 1 object markers on both posts per ADOT Signing and Marking Std M-23.
- Install new Type 1 object markers on both posts per ADOT Signing and Marking Std M-23.
- Relocate existing mile post to support closest to Roadway. See note 3.
- Relocate existing mile post to new support.
Type D Recessed Pavement Markers at 20' Spacing

6" Double Yellow

Type D Recessed Pavement Markers at 40' Spacing

8'

18'

24'

6" White

Type D Recessed Pavement Markers at 40' Spacing

6" Double Yellow

390' Taper

347'
C. Project Location:

B. Project TRACS Number; NA

B. Scheduling

A. In accordance with the specifications, within the boundaries of the Clearing areas shown on the Plan, Earth web link below (Bing Maps with labels), refer to the Arizona Department of Water Resources web link below (USGS Topo; 17th Avenue, Phoenix, AZ, 85005) and the State of Arizona web link below (ADOT; http://www.azdot.gov)

C. Project Size:

A. Project Size: reconstruction of the existing 2K foot SR Li roadway. The project involves the clearing of 20 acres, NA% of the native background vegetation. The clearing will be done to a depth of 4 feet.

D. Project Description. The project will add a left turn lane on an approximately 1.5-mile stretch of 15th Avenue between 32nd and 39th avenues.

E. Detailed site plans and specifications are available for download from the ADOT SWPPP website.

II. HYDROLOGIC INFORMATION

A. Project Size: 84.9 acres

B. Length of Project: 1,946 feet

C. Number of Acres: 20 acres

D. Percentage of Native Background Vegetation: 10% of the native background vegetation will be cleared.

E. Roads and Ditches:

F. Temporary Erosion and Sediment Controls:

G. Permanent Erosion and Sediment Controls and Specific Actions:

H. Erosion and Sediment Controls:

I. Pollution Control Measures:

J. Pollution Control Measures:

K. Other Best Management Practices:

L. Pollution Prevention and Response:

M. Other Requirements:

N. Other Requirements:

III. PRESERVATION OF EXISTING VEGETATION

A. In accordance with the specifications, existing vegetation will be preserved to the extent possible. Erosion and sediment controls will be designed to prevent erosion and sedimentation of the cleared areas. Existing vegetation within the clearing area will be preserved and protected to the extent possible.

B. Stabilization Measures:

C. Scheduling of the revegetation effort can be found on Part 2 of this sheet under SCHEDULE OF MAJOR ACTIVITIES.

D. Certification of Compliance:

E. Certification of Compliance:

F. Certification of Compliance:

G. Certificate of Compliance:

H. Certificate of Compliance:

I. Certificate of Compliance:

J. Certificate of Compliance:

K. Certificate of Compliance:

L. Certificate of Compliance:

M. Certificate of Compliance:

N. Certificate of Compliance:

O. Certificate of Compliance:

P. Certificate of Compliance:

Q. Certificate of Compliance:

R. Certificate of Compliance:

S. Certificate of Compliance:

T. Certificate of Compliance:

U. Certificate of Compliance:

V. Certificate of Compliance:

W. Certificate of Compliance:

X. Certificate of Compliance:

Y. Certificate of Compliance:

Z. Certificate of Compliance:

部 " Rosemont Copper T-intersection S B & 15 PROJECT 8 04 04 2022 5/21/2022 17:02:22 1107554 ROYCE G. W. 10/3/2022 26 44
Length varies to extend beyond the estimated high flow line of the estimated level of bankfull to pavement or fill slope.

A close, continuous contact between Bolton, of sediment log and ground to protrude 2" max above log.

Typical overlap of sediment log is wider than length of single sediment log. Two or multiple sediment logs may be necessary.

Notes:
1. Sediment Logs shall not be installed in the urban freeway sections, nor where cable barrier systems are employed.
2. Locate Sediment Logs as indicated in plans. SWP or as directed by the Engineer.
3. 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 this sheet.
4. Stakes shall be driven perpendicular to the flow of water as shown.
5. DO NOT drive stakes through center of log. Stakes shall be driven into the ground as shown.
6. The installation and maintenance of Sediment Log BMP's shall be accomplished by the Engineer in good engineering practices.
7. Placement of Sediment Logs shall be evaluated by the Engineer in rocky soil conditions.
8. Ensure that no gaps exist between soil and bottom of Sediment Log. Repair any rills or undercuts promptly.
9. The installation and maintenance of Sediment Log BMP's shall not negatively impact traffic safety, nor the designed function of roadways or drainage facilities. Sediment Log BMP's shall be maintained to carry the stormwater of at least a 2-year, 24-hour event.
10. See standard specification Section 810-2.03 (B) for Sediment Log material standards.

Refer to standard specification Section 810-2.03 for Sediment Log material specifications.
NOTES:
1. Rock Riprap/Rock Began shall be angular shaped, crushed rock materials.
2. Rock Riprap/Rock Began within the Traffic Clearance Zone shall conform to the requirements of Section 810-2.03 Sim Size Gradation C, and Section 914 of the Standard Specifications.
3. Embed rock within Traffic recovery setbacks more than the Minimum grade so that any portion of the rock below the grade will be at least 5" in height.
4. The installation and maintenance of Rock Protection Barriers shall not interfere with the traffic safety, nor the designed function of roadside or bridge drainage facilities. Rock Protection Barriers shall be installed and maintained in a manner that does not impair or detract from the aesthetics of the roadside.
5. Field inspect and correct Rock Protection Barriers immediately if it is causing an obstruction, erosion, or affecting roadway safety.
6. The Rock Protection Barriers shall be designed to include an erosion control for the banks on either side of the roadway, as well as re-contouring the area to an acceptable condition as approved by the Engineer.

ROSEMONT COPPER

DRAINAGE AND EROSION CONTROL DETAILS

ROUTE LOCATION

SR 83 Rosemont Copper T-intersection

PROJECT
ALL RUN-ON WATER FROM OUTSIDE NEW SLOPES.

WATTLE SPACING INTERVALS

<table>
<thead>
<tr>
<th>Slope Ratio Chart</th>
<th>Minimum Spacing Interval</th>
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<tbody>
<tr>
<td>3:1</td>
<td>25'</td>
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<tr>
<td>4:1</td>
<td>30'</td>
</tr>
<tr>
<td>5:1</td>
<td>40'</td>
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</tbody>
</table>

*Notes:
- Top row shell not be placed within 6'-0" of edge
- Sediment Wattle layout depends on slope shoulder.
- Ref to Standard Specification Section 810-2.050 for Sediment Wattle BMPs.
- Install and maintain Sediment Wattle BMPs to protect the stormwater disposal area.
- Loosening surface soil is not required.
- Elliptical or bridge drainage facilities.
- The Sediment Wattle BMP's are set back from contours created during soil tillage.
- Divert and direct run-on water from the ditch or bridge to the Sediment Wattle BMPs.
Embankment

---

Angled Rock Riprap/Rock Mulch to the Designed Low Slope/Back Slope Transition Point as Directed by the Engineer.

Dimension 'A' - End of Rock Riprap/Rock Mulch Shall be 50% Greater Than Dimension 'A' as Directed by the Engineer.

Dimension 'B' - End of Rock Riprap/Rock Mulch Shall be 1'-0" Below Finished Grade on Both Sides.

Install Rock Riprap/Rock Mulch 1'-0" (Min) deep. Excavate prior to installation of Rock Riprap/Rock Mulch. Refer to Cross Section, Plan Sheet.

PERSPECTIVE (NTS)

Length as Shown on Plans or as Directed by the Engineer

Excavate Cut Ditch prior to placing Rock Riprap/Rock Mulch. Top of the excavated Rock Riprap/ Rock Mulch Shall be 1'-0" Below Finished Grade on Both Sides.

NOTE: Cut and Fill Transition shall be set back 10 feet or where the width of the embankment is 50 feet or greater. Final adjust per direction of Engineer.

PLAN VIEW (NTS)

Length as Shown on Plan or as Directed by the Engineer

ROCK RIPRAP/ROCK MULCH EMBEDMENT
SECTION A-A (NTS)

Embankment

---

ROCK RIPRAP/ROCK MULCH EMBEDMENT
SECTION A-A (NTS)

Embankment

---

ROCK RIPRAP/ROCK MULCH EMBEDMENT
SECTION A-A (NTS)

Embankment

---

ROCK RIPRAP/ROCK MULCH EMBEDMENT
SECTION A-A (NTS)

Embankment

---

ROCK RIPRAP/ROCK MULCH EMBEDMENT
SECTION A-A (NTS)

Embankment

---

ROCK RIPRAP/ROCK MULCH EMBEDMENT
SECTION A-A (NTS)

Embankment

---

ROCK RIPRAP/ROCK MULCH EMBEDMENT
SECTION A-A (NTS)

Embankment

---

ROCK RIPRAP/ROCK MULCH EMBEDMENT
SECTION A-A (NTS)

Embankment

---

ROCK RIPRAP/ROCK MULCH EMBEDMENT
SECTION A-A (NTS)

Embankment

---

ROCK RIPRAP/ROCK MULCH EMBEDMENT
SECTION A-A (NTS)

Embankment

---

ROCK RIPRAP/ROCK MULCH EMBEDMENT
SECTION A-A (NTS)

Embankment

---

ROCK RIPRAP/ROCK MULCH EMBEDMENT
SECTION A-A (NTS)

Embankment

---

ROCK RIPRAP/ROCK MULCH EMBEDMENT
SECTION A-A (NTS)

Embankment

---

ROCK RIPRAP/ROCK MULCH EMBEDMENT
SECTION A-A (NTS)

Embankment

---

ROCK RIPRAP/ROCK MULCH EMBEDMENT
SECTION A-A (NTS)

Embankment

---

ROCK RIPRAP/ROCK MULCH EMBEDMENT
SECTION A-A (NTS)

Embankment

---

ROCK RIPRAP/ROCK MULCH EMBEDMENT
SECTION A-A (NTS)

Embankment

---

ROCK RIPRAP/ROCK MULCH EMBEDMENT
SECTION A-A (NTS)

Embankment

---

ROCK RIPRAP/ROCK MULCH EMBEDMENT
SECTION A-A (NTS)

Embankment

---

ROCK RIPRAP/ROCK MULCH EMBEDMENT
SECTION A-A (NTS)

Embankment

---

ROCK RIPRAP/ROCK MULCH EMBEDMENT
SECTION A-A (NTS)

Embankment

---

ROCK RIPRAP/ROCK MULCH EMBEDMENT
SECTION A-A (NTS)

Embankment

---

ROCK RIPRAP/ROCK MULCH EMBEDMENT
SECTION A-A (NTS)

Embankment

---

ROCK RIPRAP/ROCK MULCH EMBEDMENT
SECTION A-A (NTS)

Embankment

---

ROCK RIPRAP/ROCK MULCH EMBEDMENT
SECTION A-A (NTS)

Embankment

---

ROCK RIPRAP/ROCK MULCH EMBEDMENT
SECTION A-A (NTS)

Embankment

---

ROCK RIPRAP/ROCK MULCH EMBEDMENT
SECTION A-A (NTS)

Embankment

---

ROCK RIPRAP/ROCK MULCH EMBEDMENT
SECTION A-A (NTS)

Embankment

---

ROCK RIPRAP/ROCK MULCH EMBEDMENT
SECTION A-A (NTS)

Embankment

---

ROCK RIPRAP/ROCK MULCH EMBEDMENT
SECTION A-A (NTS)

Embankment
NOTES:
   Match as defined in Section 802-2.01 of the Standard Specifications. 
   Natural river-run materials, especially the rounded base river rocks 
   are not acceptable.
2. * Dams shall be X-shaped or V-flared. If Check Dam is within the 
   traffic lanes, then the size shall be as defined in NDOT Roadside Design 
   Specifications Section A-10.3.2.3 Portable Recovery Area 2007.
3. Fill, adjust fill, and grading of Rock Check Dams as necessary for 
   proper performance of the slope and drainage facilities.
4. Gravel and re-graded Rock Check Dams to the finished grade, area 
   within the ditch, as well as grading after first stabilization.
5. Field adjust the correct Rock Check Dam Spacing if it is causing 
   flooding, erosion, or affecting roadway safety.
6. Field adjust to ensure the top of the Rock Check Dam is approximately 2/3 
   height of the authorized ditch elevation levels.
7. When data is approved, the Rock Check Dam Placement is complete 
   include all materials used for this DEMP, all grading procedure, 
   finishing, finishing, maintenance, backfilling/grading back to the 
   finished grade, as well as returning the area to an acceptable condition 
   approved by the Engineer.

SECTION A-A
TRAPEZOIDAL- OR V-DITCH (INTS)

TRAPEZOIDAL DITCH PLAN (INTS)

V-DITCH PLAN (INTS)

ELEVATION ALONG DITCH SLOPE (INTS)

NOTES:
1. Construct Rock Check Dams with angular-shaped Gradation C Rock. Match as defined in Section 802-2.01 of the Standard Specifications. Natural river-run materials, especially the rounded base river rocks are not acceptable.
2. * Dams shall be X-shaped or V-flared. If Check Dam is within the traffic lanes, then the size shall be as defined in NDOT Roadside Design Specifications Section A-10.3.2.3 Portable Recovery Area 2007.
3. Fill, adjust fill, and grading of Rock Check Dams as necessary for proper performance of the slope and drainage facilities.
4. Gravel and re-graded Rock Check Dams to the finished grade, area within the ditch, as well as grading after first stabilization.
5. Field adjust the correct Rock Check Dam Spacing if it is causing flooding, erosion, or affecting roadway safety.
6. Field adjust to ensure the top of the Rock Check Dam is approximately 2/3 height of the authorized ditch elevation levels.
7. When data is approved, the Rock Check Dam Placement is complete include all materials used for this DEMP, all grading procedure, finishing, finishing, maintenance, backfilling/grading back to the finished grade, as well as returning the area to an acceptable condition approved by the Engineer.
NOTES:
1. Stabilized Construction Entrance/Exit Gravel Pad BMP for traffic entering or exiting a construction site, where sedimentation, play, dust or other pollutants can be tracked onto public rights and or adjacent water bodies, as agreed to by the Engineer. It may also be applied for construction entrance/exit and erosion/sediment control, as determined by the Engineer.
2. The location of the Stabilized Construction Entrance/Exit of appropriate project entrance/exit points as determined in field with the approval of the Engineer. For example Stabilized Construction Entrance/Exit Gravel Pad BMP as needed as project progresses. Required Rock Mulch materials in drive paths when soil or mud accumulates.
4. Rock Mulch materials shall be fractured/crushed rocks in angular shape and as defined in the Sub-section 1014-4.04 of the Standard Specifications. Nonwoven Fabric materials used in the project are less than 300 mesh (0.05 mm) and are manufactured to meet or exceed the requirements of the Standard Specification.
5. Field adjust and correct Construction Entrance/Exit Gravel Pad BMP immediately if it is causing flooding and/or affecting roadway safety.
6. When built separately, the Stabilized Construction Entrance/Exit Gravel Pad BMP's/pay-item then shall include all materials used for this BMP's, as ground preparation, furnishing, installing, and disposal of this temporary BMP's, as well as returning the area to an acceptable condition as approved by the Engineer.

BIRDS EYE VIEW (NTS)

INSTALL FENCE/BARRICADE TO DIRECT TRAFFIC TO GRAVEL PAD

NOTES:
1. Ensure stabilized construction entrance/exit gravel pad BMP for traffic entering or exiting a construction site, where sedimentation, play, dust or other pollutants can be tracked onto public rights and/or adjacent water bodies, as agreed to by the Engineer. It may also be applied for construction entrance/exit and erosion/sediment control, as determined by the Engineer.
2. The location of the stabilized construction entrance/exit of appropriate project entrance/exit points as determined in field with the approval of the Engineer. For example stabilized construction entrance/exit gravel pad BMP as needed as project progresses. Required rock mulch materials in drive paths when soil or mud accumulates.
3. Nonwoven very high survivability fabric shall conform to the standards of subsection 1014-4.04 of the standard specifications.
4. Rock mulch materials shall be fractured/crushed rocks in angular shape and as defined in the subsection 1014-4.04 of the standard specifications. Nonwoven fabric materials used in the project are less than 300 mesh (0.05 mm) and are manufactured to meet or exceed the requirements of the standard specifications. Analyze their run materials, especially stones not less than 1 inch (25 mm) in diameter.
5. Field adjust and correct construction entrance/exit gravel pad BMP immediately if it is causing flooding and/or affecting roadway safety.
6. When built separately, the stabilized construction entrance/exit gravel pad BMP's/pay-item then shall include all materials used for this BMP's, as ground preparation, furnishing, installing, and disposal of this temporary BMP's, as well as returning the area to an acceptable condition as approved by the Engineer.
NOTES:
1) Contractor shall determine final location of Stabilized Construction Entrances according to site conditions and per the approval of the Engineer. Stabilized Construction Entrances should be located where dirt road meets chip sealed and/or paved road to minimize and/or eliminate tracking. Locations of Stabilized Construction Entrances must be indicated on the Site Maps and must be approved by the Engineer and/or ADOT representatives.
2) Sweeping required as secondary measure if trackout past Stabilized Construction Entrances is visible.
3) Class II Seeding to be used on all disturbed or created slopes, and all disturbed areas.
4) Erosion/Sediment controls will be placed on all side slope boundaries in lieu of sediment basins.
5) Spill response equipment shall be accessible in case of a spill.
6) Disturbed areas where construction halts for a period greater than 14 days will require temporary stabilization measures.
7) Slopes and flow velocities have been checked and are appropriate for the BMP shown at each location.
8) No BMP shall be placed such that ingress and egress access to individual lots is restricted.
9) Temporary BMPs within drainageways to be removed once Rip Rap Splash Pad is installed.
10) Rock Check Dams shall be placed in trenches created for Sediment Control Berm to act as velocity dissipaters. See Detail ES9 for correct spacing according to slope.
11) Right-of-Way and easements are the Limits of Disturbance or Project Limits. Areas outside of the designated Project Limits shall remain undisturbed. Should additional area need to be disturbed, the Operator, ADOT and appropriate parties must be notified. Any project related activities or disturbance beyond the project limits will require historic preservation and cultural resources compliance to have been concluded before any disturbance can occur outside the project limits. The Site Maps and NOI must be updated accordingly and reflect additional BMPs.
12) There are no drywells onsite and no drywells located offsite with the potential to receive stormwater runoff from the site.
13) There are no wetlands within the limits of the project or adjacent to the project.

14) ADOT may make periodic site inspections and reserves the right to revise the location of sediment trapping devices and the types of structural controls as the field conditions dictate. The Contractor shall implement any revisions per the request of ADOT without additional cost to the Owner.

LEGEND

(Items in Legend Not to Scale)

EXISTING CONDITIONS FLOW ARROW
LIMITS OF DISTURBANCE/RIGHT OF WAY
(Not to Scale)
SEDIMENT WATTLE
SEDIMENT CONTROL LOG
STABILIZED CONSTRUCTION ENTRANCE
CHANNEL AND FLOW DIRECTION

SWPPP QUANTITIES

<table>
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<tr>
<th>Item</th>
<th>Quantity</th>
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</thead>
<tbody>
<tr>
<td>Sediment Control Logs</td>
<td>215 LF</td>
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<tr>
<td>Sediment Wattle 9&quot;</td>
<td>1,175 LF</td>
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<tr>
<td>Sediment Wattle 20&quot;</td>
<td>6,250 LF</td>
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<tr>
<td>Rock Mulch</td>
<td>135 CY</td>
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<tr>
<td>Stabilized Construction Entrance</td>
<td>330 SY</td>
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</tbody>
</table>
TRAFFIC CONTROL NOTES:

1. All construction signs shall have black letters on an orange background, 2. Adjustments to the details of these traffic control plans and requirements may be necessary due to construction activities, as directed by the Engineer and/or ADOT.

3. All existing signs in conflict with the construction signs shall be removed, relocated, or covered in place, as directed by the Engineer.

4. All construction signs shall have black letters on an orange background, except as otherwise noted.

5. The retro-reflective sheeting on all signs shall meet the criteria established for Type IX or XI sheeting. In accordance with ASTM D4956, all barricades, vertical panels, and other work zone traffic control devices may have Type IV sheeting. All orange signs shall have fluorescent sheeting.

6. All signs shown on the plans shall be mounted on embedded posts, except when the "Flagger Ahead" signs shall be installed on portable stands. For signs installed on embedded posts, sign mounting height is a minimum of 7 feet as measured from the bottom of the sign to the near edge of the pavement. All short-term signs on portable stands shall be at least 5 feet above the pavement.

7. The nearest edge or corner of a sign shall be approximately 10 feet from the nearest edge of pavement for all signs mounted on embedded posts.

8. Flags shall be mounted on top of all construction signs except the "End Road Work Thank You" sign. Type A flashing warning lights shall be required on all nighttime construction signs except the "End Road Work Thank You" sign.

9. Channelizing devices shall be 40 feet O.C. in tapers and 80 feet O.C. on tangents, except as otherwise noted on plans.

10. The Contractor may substitute Type I Barricades for Type II Barricades as long as the reflective area of the Type II Barricade is equivalent or greater than the reflective area of Type I Barricade.

11. For temporary concrete barrier details, see ADOT Standard Drawings Section 6D-1 White Barrier Markers, listed on ADOT approved products list and conforming to ADOT S&D Drawings shall be installed at 25 foot spacing. The installed price for the marker shall be considered a part of the barrier cost.

12. For sand barrier Crash Cushion details, see ADOT Standard Drawings Section 6X.

13. During nighttime the Contractor shall utilize only Type I or Type II barricades for channelizing devices, except as otherwise directed by the Engineer.

14. A Type C steady burning yellow light shall be mounted on every Type I or Type II barricade or vertical panel used for channelization during nighttime activities.

15. Speed limit signing is preliminary and is subject to review and change by the Engineer as dictated by field conditions.

16. Construction signs shall not be displayed to traffic more than 24 hours prior to the actual start of construction. These signs may be installed sooner but they must be covered or turned away from traffic. The cost for covering or turning them shall be considered part of the sign installation cost. No further compensation will be made. These signs shall be removed within 24 hours after the completion of the construction activities.

17. The Contractor shall remove all lanes of traffic at all times on SR 83 unless otherwise authorized by the Engineer.

18. Where no closure is necessary but where there is construction alongside the roadway under construction, the Contractor shall place 48 inch x 48 inch "Road Work Ahead" and "Shoulder Work Ahead" signage as directed by the Engineer to alert the public to the construction activities.

19. While traffic control items are not in use, the Contractor shall remove these items to a location at least 30 feet from the edge of the paved roadway. This includes all supports without sign panels. Any signs which are not in use but which cannot be moved at least 50 feet from the roadway shall be covered so the public cannot read the legends.

20. When stripe obliteration is necessary, it shall be accomplished by ADOT approved methods. Painting over striping, removal of pavement, and-overlaying pavement do not constitute stripe obliteration.

21. From the time the Contractor begins the excavation work for the intersection improvements until the final AC has been placed, the Contractor shall place a minimum width of 2 feet of earthen material or aggregate base for the full depth of the excavation along the sawcut edges of the pavement. In accordance with the variable width fill detail shown on this sheet. There shall be no measurement or payment for the placement, maintenance, and removal of earthen material or aggregate base in connection with these setups.

22. An adequate number of Type III Barricades shall be placed across each roadway to be closed. A 60x36 inch "Road Closed" Sign, as appropriate, shall be attached to one of the Type III Barricades closing the roadway. A Type A Flashing Warning Light shall be mounted on each end of each Type III Barricade.

23. The Contractor shall remove the existing pavement markers in connection with the striping obliteration activities. There shall be no measurement or payment for the removal of the existing raised pavement markers.

24. The Contractor shall utilize a flashing arrow panel in the squential chevron mode for each closure of a through lane, the Contractor shall not utilize a flashing arrow panel in connection with any shifting taper.

25. All drawings are schematic only and not to scale.
### APPROXIMATE TRAFFIC CONTROL QUANTITIES

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<thead>
<tr>
<th>ITEM</th>
<th>ELEMENT OF WORK</th>
<th>UNIT</th>
<th>Advanced Project Signing</th>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
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### Notes:

1. There is 3,000 LF of Temporary Concrete Barrier designed for Phase 3. Of that quantity, 2,637.5 LF shall be relocated less than 12 feet and therefore 50% of the length is utilized - 1,325 LF. There is also an additional 362.5 LF needed for the entire length designed of Temporary Concrete Barrier (Installation and Removal).

2. Temporary Concrete Barrier (In Use) and Temporary Impact Attenuator (In Use) shall be utilized for 4 weeks during Phase 3 of the traffic control.
PHASE I
TRAFFIC TO REMAIN ON EXISTING ROADWAY
1. INSTALL NEW DRAINAGE PIPES
   - Remove and replace CMP at Sta 186+99.06
   - Backfill, replace pavement, and grade to drain
   - Install new drainage pipe at Sta 181+30 right and grade to drain
2. CONSTRUCT TEMPORARY DETOUR RT
   - Grade temporary turnout connection at Sta 181+30 right

PHASE II
TRAFFIC ON DETOUR
1. CONSTRUCT NEW ROADWAY LEFT OF E & 6' RIGHT OF E
   - Reconstruct SR 83
   - Construct Primary Access Road
2. CONSTRUCT TEMPORARY DETOURS LEFT

PHASE III
TRAFFIC ON NEWLY CONSTRUCTED ROADWAY & TEMPORARY PAVEMENT LT
1. REMOVE DETOUR RT
2. CONSTRUCT NEW ROADWAY RIGHT OF CENTERLINE
   - Reconstruct SR 83
   - Construct turnout Sta 181+30.00 Rt

---

**Sign Legends:**
1. Road Work 12 Miles
2. Speed Reduced Ahead
3. Speed Limit 45
4. Do Not Pass
5. End Road Work Thank You
**SI:ET**

**TOTAL SKITS AS BUILT**

39 44

**WARNING:**
Existing Fiber Optic Line
Protect In Place

**CD CURVE DATA**

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<th>CD Curve Data</th>
<th>PI Sta</th>
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<td>72' 3:1 Barrier Taper</td>
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**SR 83 Survey & Constr Work Zone**

- Type III Barricade
- Temporary Double Yellow Stripes
- Temporary Concrete Barrier
- Temporary White Stripe
- Detour Contrl

**SECTION A-A**

New Detour Pavement Section 4, 2074 SY

**Sign Legend:**

- END ROAD WORK
- THANK YOU

**PSOMAS**

TRAFFIC CONTROL SHEET

PHASE 2

ROSEMONT COPPER

PROJECT

Rosemont Copper T-Intersection

SHEET #6 OF _____
Detour
Constr Control

SR 83 Survey & Constr

New Detour Pavement Section 4

Temporary Concrete Barrier
1,300 LF

4" Temporary Double Yellow Stripe

Detour Constr Control

Work Zone

Temp. Concrete Barrier

4" Temporary White Stripe

SECTION A-A

WARNING, Existing Fiber Optic Line Protect In Place

Detour Pavement Section 4

 Temporary White Stripe

4" Temporary Double Yellow Stripe

N22°32'10"E

45 MPH

Sign Legend

Temporary White Stripe

Temporary Concrete Barrier

4" Temporary Double Yellow Stripe

4" Temporary White Stripe

Temp. R/W Fence Remain

Exst R/W Fence Remain

Exst R/W Fence Remain

Detour Cst Control

Detour Cst Control

New Detour Pavement Section 4

2,322 SY

Rosemont Copper T-Intersection

Traffic Control Sheet

Phase 2

PRELIMINARY
NOT FOR CONSTRUCTION OR RECORDING

Sheets 1 of 9

PSOMAS

Rosemont Copper T-Intersection

SR 83

PROJECT
WARNING: Existing Fiber Optic Line Protect In Place

Temporary White Stripe

4" Temporary Double Yellow Stripe

Detour Cat Control

Temporary Concrete Barrier

Exst R/W Fence Remain

3:1 Barrier Taper

4" Temporary White Stripe

4" Temporary White Stripe

SECTION A-A

Detour Phase 3 Survey & Constr

SR 83 Survey & Constr

13' 13' 4'

2'

2'

2'

Temp. Concrete Barrier

24' 6'

Work Zone

6'

4" Temporary Double Yellow Stripe

4" Temporary White Stripe

Removal Detour 5,611 SY
**WARNING:**
Existing Fiber Optic Line
Protect In Place

**SR 83 Survey & Construction Detour Ctrl**

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**SECTION A-A**
NATIVE PLANT AND NOXIOUS WEED INVENTORY WITHIN APPROXIMATELY 7.5 ACRES OF ARIZONA DEPARTMENT OF TRANSPORTATION RIGHT-OF-WAY ON STATE ROUTE 83, PIMA COUNTY, ARIZONA

Prepared For: Rosemont Copper Company
Prepared By: WestLand Resources, Inc.
Date: July 6, 2012
Project No. 1049.26 0700 0700

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WestLand Resources, Inc.
Engineering and Environmental Consultants
1. INTRODUCTION

WestLand Resources, Inc. (WestLand) was retained by Rosemont Copper Company to conduct an inventory of native trees, shrubs, sub-shrubs, cacti, succulents, and noxious weeds within the Arizona Department of Transportation (ADOT) right-of-way (ROW) along State Route (SR) 83. The Project Area includes approximately 4.5 acres of lands approximately 12 miles south of Interstate 10 along SR 83 in Pima County, Arizona (Township 18 South, Range 16 East, Section 22; Figure 1). The Project consists of the construction of a T-intersection and associated improvements. Planned improvements extend from milepost (MP) 46.63 to MP 47.14. The Project Area construction limits are approximately 0.5 miles long and approximately 90 to 160 feet wide. The entire footprint within the ROW is approximately 7.5 acres, of which approximately 3 acres consist of paved road, shoulder, pull-offs, and a rest stop. Approximately 4.5 acres consist of vegetated areas.

2. SITE DESCRIPTION

SR 83 traverses relatively undeveloped terrain along the northeastern foothills of the Santa Rita Mountains. The elevation ranges from approximately 4,440 to 4,500 feet within the Project Area, which is comprised of a corridor along the SR83 ROW approximately 0.5 miles long. The Project Area is within the ADOT ROW, and surrounding lands on Coronado National Forest and are currently in use for cattle grazing. The substrate within the area consists of well-drained, gravelly soils on long narrow ridges formed by deep dissection of old fan surfaces. These soils are derived from igneous and sedimentary rocks (Hendricks 1985). Geological features within the Project vicinity are comprised of rhyolite to andesite and closely associated sedimentary and near-surface intrusive rocks (USGS 2011).

The entire length of the Project Area is generally centered on SR 83. A two-track dirt road intersects SR 83 from the east near the center of the Project Area, and a rest stop is adjacent to the west side of the project area near the south end (Figure 2).

The Project Area contains vegetation that can be generally characterized as the Semidesert Grassland biotic community as described by Brown (1994). The Project Area is dominated by mesquite (Prosopis velutina and P. glandulosas) and whitethorn acacia (Acacia constricta). Other species noted include condalia (Condalia warnockii), graythorn (Zizyphus obtusifolia), one-seed juniper (Juniperus monosperma), catelaw acacia (Acacia greggii), wait-a-minute bush (Mimosa biuncifera), fairy duster (Calliandra eriophylla) and desert broom (Baccharis sarothroides). Cacti noted in the Project Area include barrel cactus (Ferocactus wislizenii), rainbow cactus (Echinocereus pectinatus var. rigidissimus), Engelmann’s prickly pear cactus (Opuntia engelmannii) and cane cholla (O. spinosior). Ocotillos (Fouquieria splendens) were present in relative abundance on the east side of the road, and Parry’s agaves (Agave parryi) were also noted within the Project Area. Less abundant plant species included oreganillo (Aloysia wrightii), four-wing saltbush (Atriplex canescens), yerba-de-pasmo (Baccharis pteronioides), netleaf hackberry (Celtis reticulata), ephedra (Ephedra trirurca), desert cotton (Gossypium thurberi), broom snakeweed (Gutierrezia sarothrae), ratany (Krameria sp.), wolfberry (Lycium sp.), and wild zinnia (Zinnia acerosa). Less abundant cactus and succulent species included beehive cactus (Corphanthua vivipara), sotol (Dasylirion wheeleri), pinkflower hedgehog cactus (Echinocereus fasciculatus var.}
rigidissimus), pincushion cactus (*Mammillaria* sp.), Graham’s nipple cactus (*Mammillaria grahannii*) and desert Christmas cactus (*O. leptocaulis*).

Grasses were present throughout the understory of the Project Area and vicinity, and included black grama (*Bouteloua eriopoda*), sideoats grama (*B. curtipendula*), Lehman’s lovegrass (*Eragrostis lehmanniana*), and bush muhly (*Muhlenbergia porteri*). These grasses are not considered protected native plants and are not included in the inventory.

### 3. METHODS

Two WestLand biologists conducted a full inventory of vegetation present within 18 acres of ADOT ROW which include the Project Area over two survey days, July 22 and 26. In the field, plant counts were tallied for each species. Following Arizona State Lands Department protocol, the inventoried plants are also classified by growth form (tree, shrub, sub-shrub, cactus, and succulent).

The Project Area for this report was defined after the field inventory had been completed. The construction limits that contain vegetated areas consist of 4.5 acres. Minor variations in vegetation community composition were noted, but density and distribution of vegetation followed a relatively consistent pattern from north to south along SR 83. Because these variations were consistent along the roadway corridor, it was concluded that inventory totals from the 18-acre survey area could be used to estimate the vegetation present within the Project Area. Therefore, the number of plants within the Project Area was estimated by multiplying the percentage of the 18-acre inventory area that the vegetated portion of the Project Area represents (4.5 acres = approximately 25 percent).

WestLand personnel also surveyed for noxious weeds within the Project Area. The noxious weed species included those on the Arizona Department of Agriculture (ADA) list of “prohibited, regulated and restricted noxious weeds.”

### 4. RESULTS

#### 4.1. PLANT INVENTORY

The plant inventory results, by species, are provided in *Table 1*. The table includes the estimated number of plants of each species within the Project Area, sorted by plant growth form.
### Table 1. Total Plants Estimated Within the Project Area

<table>
<thead>
<tr>
<th>Plant Type</th>
<th>Common Name</th>
<th>Scientific Name</th>
<th>Total Counted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tree</td>
<td>One-seed juniper</td>
<td><em>Juniperus monosperma</em></td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Western honey mesquite</td>
<td><em>Prosopis glandulosa</em></td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Velvet mesquite</td>
<td><em>Prosopis velutina</em></td>
<td>517</td>
</tr>
<tr>
<td></td>
<td><strong>Total Trees</strong></td>
<td></td>
<td><strong>528</strong></td>
</tr>
<tr>
<td>Shrub</td>
<td>Whitethorn acacia</td>
<td><em>Acacia constricta</em></td>
<td>607</td>
</tr>
<tr>
<td></td>
<td>Catclaw acacia</td>
<td><em>Acacia greggii</em></td>
<td>112</td>
</tr>
<tr>
<td>Shrub (cont.)</td>
<td>Desert broom</td>
<td><em>Baccharis sarothroides</em></td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Yerba-de-pasmo</td>
<td><em>Baccharis pteronioides</em></td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Condalia</td>
<td><em>Condalia warnockii</em></td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>Wait-a-minute bush</td>
<td><em>Mimosa bicucifera</em></td>
<td>79</td>
</tr>
<tr>
<td></td>
<td>Graythorn</td>
<td><em>Zizyphus obtusifolia</em></td>
<td>23</td>
</tr>
<tr>
<td></td>
<td><strong>Total Shrubs</strong></td>
<td></td>
<td><strong>860</strong></td>
</tr>
<tr>
<td>Sub-shrub</td>
<td>Oreganillo</td>
<td><em>Aloysia wrightii</em></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Four-wing saltbush</td>
<td><em>Atriplex canescens</em></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Fairy duster</td>
<td><em>Calliandra eriophylla</em></td>
<td>111</td>
</tr>
<tr>
<td></td>
<td>Netleaf hackberry</td>
<td>* Celtis reticulata*</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Ephedra</td>
<td><em>Ephedra trifurca</em></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Desert cotton</td>
<td><em>Gossypium thurberi</em></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Broom Snakeweed</td>
<td>* Gutierrezia sarothrae*</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Ratany</td>
<td><em>Krameria sp.</em></td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Wolfberry</td>
<td><em>Lycium sp.</em></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Wild zinnia</td>
<td><em>Zinnia acerosa</em></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td><strong>Total Sub-shrubs</strong></td>
<td></td>
<td><strong>143</strong></td>
</tr>
<tr>
<td>Cactus</td>
<td>Beehive cactus</td>
<td><em>Coryphantha vivipara</em></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Pinkflower hedgehog cactus</td>
<td><em>Echinocereus fasciculatus</em></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Rainbow cactus</td>
<td><em>Echinocereus pectinatus</em></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Barrel cactus</td>
<td><em>Ferocactus wislizenii</em></td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Pincushion cactus</td>
<td><em>Mammillaria sp.</em></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Graham’s nipple cactus</td>
<td><em>Mammillaria grahamii</em></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Engelmann’s prickly pear</td>
<td><em>Opuntia engelmannii</em></td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Desert Christmas cactus</td>
<td><em>O. leptocaulis</em></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Cane cholla</td>
<td><em>O. spinosior</em></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td><strong>Total Cacti</strong></td>
<td></td>
<td><strong>29</strong></td>
</tr>
<tr>
<td>Succulent</td>
<td>Ocotillo</td>
<td><em>Fouquieria splendens</em></td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Parry’s agave</td>
<td><em>Agave Parryi</em></td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Sotol</td>
<td><em>Dasylirion wheeleri</em></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td><strong>Total Succulents</strong></td>
<td></td>
<td><strong>17</strong></td>
</tr>
</tbody>
</table>
4.2. **Noxious Weeds**

The Project Area was surveyed for the presence of any plant on the ADA’s list of prohibited, regulated and restricted noxious weeds. None were noted in the Project Area.

5. **References**


ROSEMONT JUNCTION AREA - PIMA COUNTY

T18S, R16E, Portion of Section 22,
Pima County, Arizona,
Empire Ranch USGS 7.5' Quadrangle

ROSEMON T COPPER COMPANY
STATE ROUTE 83 ADOT ROW
T-INTERSECTION
Native Plant and Noxious Weed Inventory
VICINITY MAP
Figure 1
T18S, R16E, Portion of Section 22, Pima County, Arizona, Empire Ranch USGS 7.5' Quadrangle Photo Source: Bing Imagery

LEGEND

- Construction Limits for T-Intersection
- R.O.W. Limits

ROSEMONT COPPER COMPANY
STATE ROUTE 83 ADOT ROW
T-INTERSECTION
Native Plant and Noxious Weed Inventory

PROJECT AREA

Figure 2
Rosemont Copper Company has proposed to implement improvements to the Arizona Department of Transportation Right of Way (ROW) associated with State Route 83 (SR 83). These improvements would include:

1. Widening of SR 83 between mileposts 46.6 and 47.1 to allow for turn lanes.
2. Construction of a new intersection.
3. Improvements to an existing intersection.

The portion of SR 83 which would be improved lies within the limits of the Patagonia-Sonoita Scenic Road. Designated as a state Scenic Road in 1985, it extends for a total distance of approximately 52.5 miles. As a part of the designation process, a Corridor Management Plan was developed and includes five management goals to preserve the qualities that led to the designation of the highway as a Scenic Road; they are as follows:

1. Conserve and enhance the natural scenic resources that make this area such as important place to protect and a privilege to visit.
2. Protect cultural and historic qualities of the region that reflects the long-standing rural way of life.
3. Maintain and improve services and facilities for residents and visitors that are consistent with small town, rural character and local values.
4. Improve safety along scenic road for all users without jeopardizing intrinsic qualities.
5. Continue to build partnerships and foster cooperation among agencies and organizations to ensure that the goals of the scenic road are in harmony with existing programs that protect and enhance the intrinsic qualities along the roadway.

For the following reasons, the proposed improvements would be consistent with the management goals listed above and would not threaten the designation of the Patagonia-Sonoita highway as a Scenic Road:

1. As shown in project plans, the proposed cut slopes (3:1 maximum gradient) and fill slopes (6:1 maximum gradient) associated with the widening of SR 83 are sufficiently modest to allow for successful revegetation. Therefore, with time, the disturbed slopes would appear similar to existing cut and fill slopes associated with SR 83 and will not stand out as visual distractions.
2. New cut and fill slopes would be modest in height (less than six feet) and not highly visible.

3. The proposed improvements would be constructed over a segment of the roadway that is not visible from other parts of the highway.

4. The vegetated area to be disturbed is approximately 4.5 acres over a highway distance of approximately one-half mile. This mileage represents less than one per cent of the total length of the Patagonia-Sonoita Scenic Road. Therefore, the proposed improvements are negligible in scale when compared to the scenic road as a whole.

5. There are numerous existing public and private roads which intersect with SR 83. The designs of the proposed new and improved intersections are similar to these existing tie-ins. Therefore, the proposed improvements will not stand out as unique visual distractions.