

DISTRICT 11

MATERIALS INFORMATION BROCHURE

MATERIALS ENGINEERING BRANCH

**11-SD-5, 805 & 56
KP R48.4/R51.3 (5)
KP 43.9/46.5 (805)
KP T0.7/T2.0 (56)
11-0301U1**

CT

CALIFORNIA DEPARTMENT OF TRANSPORTATION

State of California

Business, Transportation and Housing Agency

Memorandum

To : LEON EDMONDS
Office Engineer
District 11

Date: January 8, 2002

File: 11-SD-5, 805 & 56
KP R45.5/R59.5 (5)
KP 41.4/46.3 (805)
KP T0.7/T2.0 (56)
EA 0301U1

From : DEPARTMENT OF TRANSPORTATION - DISTRICT 11
Materials Engineering Branch

Subject: Materials Information Brochure

Attached herewith for your consideration

MATERIALS INFORMATION

FOR PROPOSED PROJECT ON ROUTES 5, 805 & 56

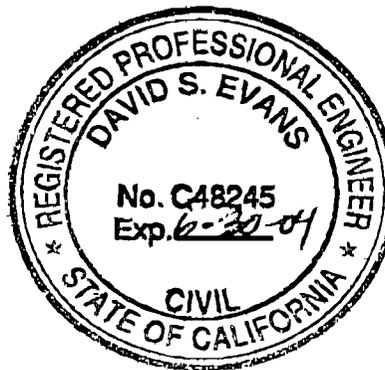
IN SAN DIEGO COUNTY

STATE ROUTES 5, 805 & 56

For Construction of a portion of Routes 5, 805 & 56
in San Diego County



Dave Evans
District Assistant Materials Engineer



Attachment

AFP: ra

cc: AKosup (9)

AJacobo (35)

MKharrati (35)

LEdmonds (37)

JEgan (63)

LKemp (73)

Construction Admin. Senior (72)

Project File (mib 0301U1 5-805.doc)

MATERIALS INFORMATION
Not a Part of the Contract

11-SD-5, 805 & 56
KP R45.5/R59.5 (5)
KP 41.4/46.3 (805)
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NOTE: Information contained herein has been compiled in accordance with Section 2-1.03 of the Standard Specifications. Additional information is available for review at the District 11, Materials Laboratory, 7177 Opportunity Road, San Diego, California.

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MATERIALS INFORMATION

R-VALUES

The design R-value of 15 was based on a previous Memorandum Report dated September 16, 1998. Design recommendations are based on the Fifth Edition of the Highway Design Manual.

CORROSION ANALYSIS

As reported in the Memo in Lieu of Materials Report, dated January 12, 1993, the project soils tested were slightly acidic with an average pH of 5.8 and a range of 4.5 to 7.4. Resistivities were generally very high, averaging 7500 Ohms-cm and varied from 1000 to 19900 Ohms-cm. With resistivities greater than 1000 Ohms-cm, the soils are presumed to have chlorides less than 500 mg/kg and sulfates less than 2000 mg/kg and are therefore non-corrosive to reinforced concrete pipe.

The inlets and outlets of numerous cross-drains and side-drains were field inspected during September, 1998, and were found to be in good condition. Based on this and a review of previous material reports, the environment is non-corrosive to reinforced concrete pipe and corrosive to metal pipe.

Any imported borrow sources other than from the existing project cut slopes would need to be representatively sampled and tested to confirm corrosion design life.

RECOMMENDED CULVERT ALTERNATIVES

Recommendations for Existing Culverts:

1. In accordance with CTM 643, the condition of existing drainage facilities determines design over actual corrosion testing. Therefore, modifications to existing systems should match the "as-builts".
2. Plastic Pipe Culverts that meet the minimum and maximum fill height requirements can be used in modifications to existing drainage systems. Either Corrugated Polyethylene (Type S), Ribbed Profile Wall Polyethylene, or Ribbed Profile Wall Polyvinyl Chloride pipe can be used.
3. Modifications to existing CSPs, such as moving drop inlets, requires that any exposed metal be adequately coated on the soil side with a bituminous or mastic compound.

Recommendations for New Culverts:

1. Plastic Pipe Culverts meeting the minimum and maximum fill height requirements. Either Corrugated Polyethylene (Type S), Ribbed Profile Wall Polyethylene, or Ribbed Profile Wall Polyvinyl Chloride pipe can be used.
2. Reinforced Concrete Pipe (RCP) using the standard design.

GROUND WATER

Groundwater was not encountered in any of the test pit excavations to the depth explored. However, because of high groundwater levels in the low-lying areas throughout the surrounding region, water levels can be expected to vary considerably depending on the location.

This project should have no significant impact on existing groundwater conditions. For further information contact Geotechnical Design South - Branch D.

GRADING FACTORS

Based on a review of the Memo in Lieu of Materials Report, dated January 12, 1993, the overall grading factor for the project should be 0.99 (1% shrinkage). The grading factor was calculated using a grading factor of 1.00 for the Torrey Sandstone type of material and a grading factor of 0.98 for the other existing materials located in the excavation areas.

EARTHWORK QUANTITIES

The following earthwork quantities are from the December 28, 2001 Engineer's Estimate.

Roadway Excavation	719,600 m ²
Surcharge	39,049 m ²
Roadway Excavation (ADL)	10,554 m ³
PGR Structural Excavation	133,867 m ³
Structural Excavation (Bridge)	4,193 m ³
Structural Excavation (RW)	64,887 m ³

EARTHWORK QUANTITIES (continued)

Embankment	282,169 m ³
Structural Backfill (Bridge)	1,520 m ³
Structural Backfill (RW)	37,063 m ³
PGR Structural Backfill	363,000 m ³

MATERIALS SOURCES

The engineer's estimate shows there to be approximately 270,000 m³ of excess material. The following are two optional disposal sites, which have been identified for disposal of the excess material.

1. East of I-5 between Del Mar Heights Rd. and Via De La Valle. This site will be available June 2003 and can take up to 160,000 m³.
2. SR52 / SR125 Project. This site is currently available. The contractor will have to notify the Resident Engineer by May 31, 2002 of the estimated amount he plans to take to this site and the work must be completed by November 30, 2002. This site can take up to 300,000 m³.

If the contractor elects to use any of the optional sites he/she will be responsible for complying with Caltrans requirements as referred to in the Special Provisions and the Standard Specifications.

- Section 5-1.13 ENVIRONMENTALLY SENSITIVE AREA (ESA)
- Section 5-1.14 BIOLOGIST
- Section 5-1.24 AERIALY DEPOSITED LEAD and Section 10-1.38 MATERIAL CONTAINING AERIAL DEPOSITED LEAD (if necessary)
- Section 10-1.02 WATER POLLUTION CONTROL (SWPPP)
- Section 10-1.21 MAINTAINING TRAFFIC
- Temporary and ultimate SWPPP as defined in the current permits shall be included.
- Traffic control shall be included using Chart Numbers 2 and 27 and LATE REOPENING OF CLOSURES as defined in the contract shall apply.
- Permits with CALIFORNIA DEPARTMENT OF FISH AND GAME, US ARMY CORPS and CALIFORNIA COASTAL COMMISSION when issued. Any requirements not addressed shall be handled in accordance with Section 4-1.03.
- Drainage work shall be paid in accordance with Section 4-1.03.
- Removal/ mitigation measures for work in the ESA shall be handled in accordance with Section 4-1.03.
- Section 16 CLEARING AND GRUBBING shall be included.
- Section 19 EARTHWORK 90% compaction and 95% within 50 m of future bridge widening shall be included.

MATERIALS SOURCES (continued)

A current list (dated October 5, 2001) of mining operations eligible to sell materials such as aggregates to the State of California in San Diego County follows:

Calif. Mine ID	Mine Name	Operated By
91-37-0002	NORTH TWIN OAKS VALLEY QUARRY	HANSON AGGREGATE CO.
91-37-0004	MISSION VALLEY ROCK PLANT	H.G. FENTON CO.
91-37-0005	PALA ROCK PLANT (SAND)	HANSON AGGREGATE CO.
91-37-0007	CARROLL CANYON PLANT	HANSON AGGREGATE CO.
91-37-0009	WYROC SYCAMORE QUARRY	WYROC, INC.
91-37-0010	LAKESIDE SAND PIT	C.W. MCGRATH, INC.
91-37-0011	HILLSDALE PIT	C.W. MCGRATH, INC.
91-37-0012	EL CORZAN	CITY OF OCEANSIDE
91-37-0013	SIM J. HARRIS COMPANY	HANSON AGGREGATE CO.
91-37-0015	UCLH SAN MARCOS	HANSON AGGREGATE CO.
91-37-0016	OCEANSIDE/CARLSBAD	HANSON AGGREGATE CO.
91-37-0019	TTT QUARRY	SUPERIOR READY MIX CONCRETE
91-37-0020	HESTER'S GRANITE	HANSON AGG
91-37-0021	SLAUGHTER HOUSE CANYON	PIONEER CONCRETE OF CA., INC.
91-37-0022	MCGRATH BORROW PIT	C.W. MCGRATH, INC.
91-37-0024	MISSION GORGE PIT	SUPERIOR READY MIX CONCRETE, L
91-37-0025	RCP PITS 1,2,3, & 5 INCLUSIVE	RCP BLOCK & BRICK, INC.
91-37-0026	MISSION VALLEY	CALMAT CO
91-37-0027	SLOAN CANYON	SLOAN CANYON SAND COMPNAY
91-37-0028	MISSION VALLEY-EX FENTON	CALMAT CO
91-37-0029	CARROLL CANYON	CALMAT CO
91-37-0030	VULCAN - POWAY	VULCAN MATERIALS
91-37-0033	LAKESIDE	VULCAN MATERIALS
91-37-0034	EL MONTE PIT	HANSON AGGREGATE CO.
91-37-0035	OTAY RANCH PIT	HANSON AGGREGATE CO.
91-37-0036	NELSON & SLOAN PIT 12	HANSON AGGREGATE CO.
91-37-0037	BORDER HIGHLANDS PIT	JIM & LOIS NELSON LP
91-37-0042	MONTE VISTA BORROW PIT	SAN DIEGO COUNTY PUBLIC WORKS
91-37-0043	ALLEN BORROW PIT	SAN DIEGO COUNTY PUBLIC WORKS
91-37-0044	BUCKMAN SPRINGS BORROW PIT	SAN DIEGO COUNTY PUBLIC WORKS
91-37-0045	OLIVE STREET BORROW PIT	SAN DIEGO COUNTY PUBLIC WORKS
91-37-0046	MCCAIN BORROW PIT	SAN DIEGO COUNTY PUBLIC WORKS
91-37-0047	BURNAND BORROW PIT	SAN DIEGO COUNTY PUBLIC WORKS
91-37-0048	WARNER BORROW PIT	SAN DIEGO COUNTY PUBLIC WORKS
91-37-0050	MORETTI-MESA GRANDE B.P.	SAN DIEGO COUNTY PUBLIC WORKS
91-37-0052	NATIONAL QUARRIES	NATIONAL QUARRIES
91-37-0053	JAMUL QUARRY	CALMAT CO.
91-37-0054	INLAND VALLEY MATERIALS	INLAND VALLEY MATERIALS
91-37-0056	PALO VERDE LAKE DESILTATION &	PALO VERDE RANCH HOA
91-37-0056	THE PAUMA VALLEY COUNTRY CLUB	THE PAUMA VALLEY COUNTRY CLUB
91-37-0060	RANCHO SAN DIEGO GOLF COURSE	J. CLOUD INC.
91-37-0063	WOODWARD SAND	LAKESIDE LAND COMPANY, INC.