



Montana Department of Transportation  
 PO Box 201001  
 Helena, MT 59620-1001

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**Memorandum**

To: Dawn Stratton, Supervisor  
 Fiscal Programming Section

From: Heidi Bruner, P.E.  
 Engineering Services Supervisor  
 Environmental Services

Date: February 16, 2011

Subject: Dena Mora Rest Area  
 IM 90-1(187)5  
 Control Number: 7029 000

Environmental Services has determined that this proposed project will not involve unusual circumstances as described under 23 CFR 771.117(b). It therefore qualifies as a Categorical Exclusion under the provisions of 23 CFR 771.117(c), part (12). The proposed project will rehabilitate the existing Dena Mora rest area's water supply and wastewater treatment systems. The rest area is on Interstate 90 between Reference post 4 and 5 and serves both the east and west bound traffic. Work will be completed within the existing rest area facilities. The intermittent rest area closures will be minimized. The attached Preliminary Field Review Report dated December 15, 2010 is attached and provides a project site map and a more complete scope of work. This proposed action also qualifies as a Categorical Exclusion under the provisions of ARM 18.2.261 (Sections **75-1-103** and **75-1-201, M.C.A.**).

In accordance with the Federal Highway Administration's (FHWA) letter of March 29, 1999, please notify FHWA that the proposed action is being processed in accordance with 23 CFR 771.117(c).

Attachment

cc: Doug Moeller District Administrator- Missoula  
 Paul F. Ferry, P.E. Highways Engineer  
 Kevin Malone Project Design Manager  
 Robert Stapley Right-of-Way Bureau Chief  
 Walt Scott Utilities Section Supervisor  
 Suzy Price, P.E. Contract Plans Supervisor  
 Tom Martin, P.E. Environmental Services Bureau Chief  
 Susan Kilcrease Missoula Project Development Engineer  
 Gene Kaufman, P.E. Operations Engineer-FHWA  
 Environmental Quality Council  
 File



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**Memorandum**

To: Tim J. Conway, P.E.  
 Consultant Design Engineer

From: Roy A. Peterson, P.E.  
 Consultant Plans Engineer

Date: December 15, 2010

Subject: IM 90-1(187)5  
 Dena Mora Rest Area  
 UPN: 7029  
 Project Work Type Number: 172 Restoration and Rehabilitation-Facilities

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Please approve the attached Preliminary Field Review Report. The report was prepared by the consultant, Robert Peccia and Associates, and is intended to document the duties and responsibilities of each party with regard to the design development of the project.

Approved Tim J. Conway Date 12/17/2010  
 Tim J. Conway, P.E.  
 Consultant Design Engineer

We are requesting comments from those on the distribution list. We will assume their concurrence if we receive no comments within one week of the approval date.

**Distribution:**

- |   |  |
|---|--|
| Doug Moeller, Missoula District Administrator   | Lynn Zanto, Rail, Transit, & Planning Division Administrator |
| Kent Barnes, Bridge Engineer                    | Jake Goettle, Construction Engineering Services Bureau       |
| Tom Martin, Environmental Services Bureau Chief | Matt Strizich, Materials Engineer                            |
| Duane Williams, Traffic and Safety Engineer     | Jon Swartz, Maintenance Administrator                        |
| Robert Stapley, Right-of-Way Bureau Chief       | Gene Kaufman, FHWA - Operations Engineer                     |
| Paul Ferry, Highways Engineer                   |  |

**cc:**

- |  |  |
|--|--|
| Dave Jensen, Fiscal Programming Section Supervisor | Stan Sternberg, Environmental Services |
| Kevin Malone, Project Design Manager               | Larry Murolo, Facilities Bureau Chief  |
| <i>CONSULTANT DESIGN PROJECT FILE</i>              |  |

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| Jim Walther, Engineering, Preconstruction Engineer     | Jason Sorenson, Engineering Cost Analyst        |
| Lesly Tribelhorn, Highways Design Engineer             | Jake Goettle, Construction Bureau - VA Engineer |
| Mark Goodman, Hydraulics Engineer                      | Shane Stack, District Preconstruction           |
| KC Yahvah, District Hydraulics Engineer                | Ben Nunnallee, District Projects Engineer       |
| Bonnie Gundrum, Env. Resources Section Supervisor      | David Childers, District Materials Lab          |
| Pat Basting, District Biologist                        | Jack May, District Maintenance Chief            |
| Susan Kilcrease, District Project Development Engineer | Wait Scott, R/W Utilities Section Supervisor    |
| Danielle Bolan, Traffic Engineer                       | David Hoerning, R/W Engineering Manager         |
| Ivan Ulberg, District Traffic Project Engineer         | Greg Pizzini, Acquisition Manager               |
| Pierre Jomini, Safety Management Engineer              | Joe Zody, R/W Access Management Section Manager |
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| Matt Strizich, Materials Engineer                      | Sue Sillick, Research Section Supervisor        |
| Daniel Hill, Pavement Analysis Engineer                | Alice Flesch, ADA Coordinator                   |
| Brett Boudry, District Geotechnical Manager            | Jean Riley, Planner                             |
| Bryce Larsen, Supervisor, Photogrammetry & Survey      | Paul Grant, Public Involvement Officer          |
| Marty Beatty, Engineering Information Services         |   |

## Preliminary Field Review Report

IM 90-1(187)5; Dena Mora Rest Area  
Project Manager: Kevin Malone/Stan Sternberg

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### Introduction

A combined scoping meeting and preliminary field review for the project was conducted on October 29, 2010. The following individuals attended the meeting:

<b>Name</b>	<b>Representing</b>	<b>Ph. Number</b>
Kevin Malone	Consultant Design Bureau - Helena	444-9369
Stan Sternberg	Environmental Services Bureau - Helena	444-7647
Pat Driscoll	Environmental Services Bureau - Helena	444-7223
Pat Basting	Missoula District Biologist	523-5872
Jim Lawson	Missoula District Maintenance Supervisor – St. Regis	649-2768
Jean Riley	Planning – Program and Policy Analysis - Helena	444-9456
KC Yahvah	Hydraulics - Helena	444-7654
Sheila Ludlow	Planning – Statewide and Urban	444-9193
Jack May	Missoula District Maintenance	523-5803
Bill Sansom	Missoula District Maintenance – Lookout Pass	678-4281
Walt Nelson	Headquarters Facilities Maintenance - Helena	444-3258
Chris Dorrington	Planning – Data and Statistics Bureau - Helena	444-7239
Gary Swanson	Robert Peccia and Associates, Water & Wastewater Div. Mgr.	447-5000
Bob Morton	Robert Peccia and Associates, Project Engineer	447-5000
Tom Cavanaugh	Robert Peccia and Associates, Project Manager	447-5000

### Proposed Scope of Work

The proposed project has been nominated to rehabilitate the rest area's water supply and wastewater treatment systems. The project will retrofit specific water and wastewater features to those installed under the Dena Mora Rest Area Reconstruction Project, IM 90-1(138)5, UPN 3206. The design development will be performed by the consultant, Robert Peccia and Associates, under their 2010-2012 Environmental Public Water & Wastewater Treatment Systems Term Contract.

### Purpose and Need

The purpose of the project is to correct operational and maintenance issues associated with the existing water and wastewater system, and as a priority, to install an advanced wastewater treatment system. A project goal is to remove this rest area from the current Montana Ground Water Pollution Control Systems (MGWPCS) Domestic Wastewater Permit.

### Project Location and Limits

The project is located at the existing Dena Mora Rest Area site, in Mineral County, at approximate milepost 4.7 on Interstate 90 east of the Idaho/Montana state line. The rest area consists of two rest area buildings. One building serves westbound motorists and is located on the north side of the interstate, while the other serves eastbound motorists with the building located on the south side of the interstate. The rest area was reconstructed in 2003 under project IM 90-1(138)5, UPN 3206. The rest area sits in the St. Regis River valley which splits mountainous terrain. The adjacent interstate highway alignment generally parallels the St. Regis River, with the river situated just south of the eastbound rest area.

### Work Zone Safety and Mobility

At this time, Level 3 construction zone impacts are anticipated for this project as defined in the Work Zone Safety and Mobility (WZSM) guidance. A limited Public Information (PI) component to address intermittent rest area closures will also be included in the plan package.

## Preliminary Field Review Report

IM 90-1(187)5; Dena Mora Rest Area  
Project Manager: Kevin Malone/Stam Sternberg

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### Physical Characteristics

A brief description of the project's pertinent physical characteristics follows:

- a. The rest area was reconstructed in 2003 under project IM 90-1(138)5, UPN 3206 which included new buildings, picnic shelters, water and wastewater conveyance and treatment, grading, some parking expansion and landscaping;
- b. The wastewater effluent flows from the southside eastbound rest area, northerly under Interstate 90, to combine with the effluent from the northside, westbound rest area;
- c. The eastbound and westbound rest areas are each served by individual septic tanks;
- d. The effluent from the septic tanks combine in a common sanitary sewer manhole located on the north side rest area, east of the westbound rest area building;
- e. The combined effluent flows easterly to a dosing tank located approximately 1,000 feet from the manhole of which the eastbound and westbound rest area effluent is combined;
- f. The wastewater effluent is gravity flow until entering the dosing tank;
- g. The dosing tank with two pumps discharges the effluent to an elevated sand mound drainfield;
- h. The drainfield consists of multiple zones with laterals of perforated pipe that receive the effluent;
- i. The rest area is subject to high ground water, particularly evident in the spring months;
- j. The existing sanitary sewer line from the eastbound site that runs under the interstate was not replaced in the 2003 reconstruction;
- k. There are two water supply wells, one for each rest area site. The wells are original and were not replaced, but instead rehabilitated, in the previous reconstruction;
- l. Water supply in each rest area is treated by an Ultraviolet (UV) light system with in-line pre-filters to remove particulates;
- m. The location of the rest area creates maintenance issues for year-round operation due to the heavy snow accumulation. Snow removal is necessary to access in particular, wastewater conveyance and treatment instruments, controls and facilities outside of the buildings.

### Traffic Data

Traffic data was not obtained for this proposed rest area rehabilitation project. However, effluent flow generated by rest area users is applicable for design development purposes. Effluent flow is obtainable from a wastewater flow meter installed in a vault near the dosing tank.

### Crash Analysis

Crash data is not applicable for this project.

### Major Design Features

The following sections summarize the pertinent design features on this project:

- a. **Design Speed.** Not applicable.
- b. **Horizontal Alignment.** Not applicable.
- c. **Vertical Alignment.** Not applicable.
- d. **Typical Sections and Surfacing.** Not applicable.
- e. **Geotechnical Considerations.** A geotechnical findings report was completed under the IM 90-1(138)5 project and can be referenced to this project during design and development. Of significance with the proposed scope of work is high ground water of which countering the buoyancy of new in-ground structures must be considered.
- f. **Bridges.** Not applicable.
- g. **Traffic.** Not applicable.

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- h. **Pedestrian/Bicycle/ADA.** Not applicable.
- i. **Context Sensitive Design Issues.** Not applicable.
- j. **Wastewater Volume.** The rest area currently operates under a DEQ administered Montana Ground Water Pollution Control Systems (MGWPCS) permit. A project goal is to remove this rest area from that permit. The Administrative Rules of Montana (ARM) excludes public sewage systems with a design capacity less than 5,000 gallons per day from the need for permit coverage. The rest area currently experiences less than 5,000 gallons per day effluent flow. The project will confirm whether 5,000 gallons per day will be achieved during the design year.

If the design year flow is expected to exceed 5,000 gallons per day, the project proposes to install surge tank(s) or other features to limit system flow to less than 5,000 gallons per day as part of the agreement made with DEQ. The intent will be for the surge tanks to take in high level flows during periods of high use (e.g. weekend days), then gradually release the excess accumulated flow during periods of low discharge (e.g. evenings). The project will investigate the potential of using the existing dosing control chamber as a partial means to limit flow as needed.

- k. **Dosing Control Tank.** The project will evaluate the current float control setup and control electronics and implement/specify corrections as necessary. MDT Missoula District Maintenance has stated that control appears to be working properly with no recent pump failures being experienced.
- l. **Advanced Wastewater Treatment.** As a precursor to this project, the MDT has completed a Findings of Public Interest with the Federal Highway Administration to allow the MDT to specify the use of the Eliminate wastewater treatment system for all new installations and replacement installations throughout the state as the means to meet nondegradation requirements. The DEQ has been engaged as a partner in these findings. The vendor supplied Eliminate system of advanced treatment will be specified and installed in this project. The installation will include opportunity for future expansion to treat increasing flow. Although pre-approved with DEQ for intentional use, the details and specifications will still require DEQ review and approval as a part of their agency oversight process for water and wastewater system monitoring.
- m. **Wastewater Distribution Valve.** The wastewater distribution valve at the top of the drainfield, which receives pressurized effluent from the dosing tank and distributes it to the drainfield lateral zones has operational issues. The project will further investigate the problems and specify an appropriate repair to facilitate zone distribution.
- n. **Wastewater Effluent Solids.** Solids have been getting into the dosing tank, which pumps up to the drainfield. This is likely a contributing cause of the distribution valve failure and could add potential to premature drainfield plugging. When septic filters plug, the effluent will rise until overflowing the filter bypass. The recommended action is to add septic filter alarms to notify staff of septic filter plugging so the filters and tanks can be cleaned and pumped before effluent bypasses into the filter overflow.

In addition, the proposed installation of the advanced wastewater treatment system downstream of the septic tanks will provide some effluent filtering as the system operates by flow through filtering media. Filter cleaning, septic pumping, and the addition of the advanced wastewater treatment system should remedy the concern of clogging the wastewater distribution valve as discussed in Item m.

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- o. Ground and Surface Water Inflow into the Sanitary Sewer System.** The project will determine and mitigate the reported issue of water entering the sanitary sewer system. Issues may be joint separation in new sewer lines, cracks and other failures in the existing line under the interstate, surface inflow into manhole lids, failures in manhole joints, or other joint/connection failures, or faulty restroom urinals or toilets that inadequately seal between uses. The project proposes to utilize low-level air pressure testing and camera inspection on the sanitary sewer lines in attempt to determine the cause(s). Improvements will be specified as part of the proposed rehabilitation.
- p. Surface Water Flow at Toe of Drainfield.** A 24-inch diameter irrigation rated reinforced concrete pipe connects to a drop inlet upstream (west side) of the elevated drainfield, and conveys surface runoff discharging into the drop inlet as well as ground water from an existing perforated pipe network that was constructed with the original rest area and interstate. These combined flows are conveyed to the downstream (east side) of the drainfield and discharge near the toe of the drainfield. This flow is then discharged through a 36-inch diameter corrugated steel culvert installed under the interstate where flows ultimately reach the St. Regis River. As surface water is exposed at the toe of the drainfield prior to entering the culvert under the interstate, it is proposed that the two culverts be enclosed by a combination manhole/drop inlet. The drop inlet is needed to collect storm water runoff in the area which is an enclosed basin created by a mountain slope to the north, the interstate to the south and east and the drainfield to the west.
- q. Drainfield Cleanouts.** The drainfield cleanouts are required at the end of each lateral and rise approximately 6-inches above ground. They have a history of breaking or shearing off. The exact cause of breaking is unknown but is speculated to be due to snowmobiles. The project will have the cleanouts reconfigured to be flush with the ground and covered with a frame and lid.
- r. Drainfield Laterals.** Due to cleanouts breaking and the concern of solids bypassing the septic filters, the perforated drainfield laterals likely have partial clogging. The project will investigate the issue. Recommended treatment is to flush the laterals and inspect by exposing the lines or TV view. Final inspection will determine if replacement is necessary. Cleaning and inspection is proposed to be completed during the construction of this rehabilitation project. A determination as to replacing drainfield laterals will be made at that time.
- s. Dosing Station Pumps.** The current pumps are grinder pumps common to sewer lift stations. Pump type and operation settings will be reviewed to assure appropriate applications are in place given proposed system revisions. Current coordination with District Maintenance is that the pumps are operating satisfactory, but the project will confirm and may incorporate revisions.
- t. Ultraviolet (UV) Potable Water Treatment System.** The UV system has continuous issues with maintenance likely due to iron bacteria buildup. It was noted that MDT Maintenance is replacing the pre-treatment filters approximately 2 times per month. This frequency is reduced when the water flow rate increases during the summer irrigation. It was also noted that the existing UV system is maintenance intensive and during the last few years several advancements have been made to these types of systems. In particular, the system installed in the Anaconda rest area is a better product. The project will verify the problem, then develop and implement a remedy to address how the iron bacteria buildup can be mitigated. DEQ coordination for design revision will be necessary and could include shock chlorination, pre-treatment and hypochlorite disinfection.

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### Other Projects

An interstate rehabilitation project, (Taft-West, UPN 5830001), will be underway at the time of this project in the summer of 2011. The interstate project will include cracking and seating the existing concrete surfacing. A concern was raised about the impact forces over the existing sanitary sewer line running between the rest area sites below the interstate eastbound and westbound travel lanes. The existing sewer line is cast iron under the paved travel lanes and ramps, and clay tile under the embankment outside the travel lanes. The depth of bury is approximately 6 feet under the westbound lanes, and slightly greater under the eastbound lanes. In reference to the Taft-West plans, the existing sewer line crossing is at approximate Station 250+00. The sewer line can be identified by an existing manhole located in the interstate median. Coordination between projects is necessary to locate and protect the existing sanitary sewer line installed under the interstate.

The 36-inch diameter steel culvert installed under the interstate east of the drainfield will be adjusted under this project to have its inlet enclosed with a combination manhole/drop inlet as previously discussed. This culvert is located at Station 268+00 on the Taft-West plans. The Taft-West project specifies to use the culvert as-is.

### Location Hydraulics Study Report

A Location Hydraulics Study Report will not be required for this project.

### Design Exceptions

No design exceptions have been identified for this project.

### Right-of-Way

The proposed work will be rehabilitating existing features within the existing right-of-way. As such, no right-of-way involvement is anticipated.

### Cold-In-Place Recycle

Not applicable to this project.

### Access Control

Not applicable to this project.

### Utilities/Railroads

No utility or railroad involvement is anticipated for this project. The consultant is responsible for design of utility service lines.

There is a power meter installed near the dosing tank which supplies power to the dosing control. The installation of the advanced wastewater treatment system will require power from that meter base or from the rest area service line depending on its design location.

### Intelligent Transportation Systems (ITS) Features

No ITS features will be implemented with this project.

### Survey

Some new survey will be required for this project to obtain key elevations, elevation differences and grades of the wastewater system in order to complete the design. The IM 90-1(138)5, UPN 3206 project was surveyed and designed in the metric system. It is proposed that this project use the English system of measurement.

Shortly after the field review, the consultant re-established survey control using original IM 90-1(138)5, UPN 3206 project control as the basis, and completed initial project topographical survey. This survey work was completed under Term Assignment No. 101 executed under the consultant's 2010 - 2012 Environmental Public Water & Wastewater Treatment Systems Term Contract.

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### Public Involvement

The proposed public involvement work plan is a Level A activity to include a news release to local newspapers explaining the project and including a department point of contact.

To retrofit proposed features, minimizing rest area shutdown time will be considered in the design process.

### Environmental Considerations

A Categorical Exclusion would be the appropriate environmental document addressing MEPA/NEPA requirements. In addition, environmental considerations will be addressed through the DEQ during project development regarding water and wastewater aspects. It is assumed the Department will complete the Categorical Exclusion.

### Energy Savings/Eco-Friendly Considerations

No energy savings or eco-friendly considerations were specifically identified with this project. Features to be rehabilitated will be reviewed for possible energy saving aspects, such as using energy efficient pumps, when determining component specifications.

### Experimental Features

No experimental features have been identified for this project.

### Traffic Control

Traffic will be controlled by closing rest area entrance ramps as necessary to accomplish certain retrofit work items.

The work will likely coincide with the adjacent Taft-West interstate rehabilitation project which will have its own traffic control plan. Its plan will need to take into account access to complete the rest area rehabilitation.

### Project Management

Plans and special provisions will be developed by Robert Peccia and Associates. The MDT project design manager will be Kevin Malone, Consultant Design (444-9369). This project is not under full FHWA oversight.

### Preliminary Cost Estimate

The preliminary cost estimate is approximately \$400,000 (CN-\$375,000; CE-\$25,000). At this point the cost estimate is very conceptual and will be refined as the design progresses.

### Ready Date

A ready date will be established once a schedule is complete. The schedule is contingent on DEQ approvals of system designs. The agreement between MDT and DEQ is to have the advanced wastewater treatment on-line and operational by fall 2011.

### Site Map

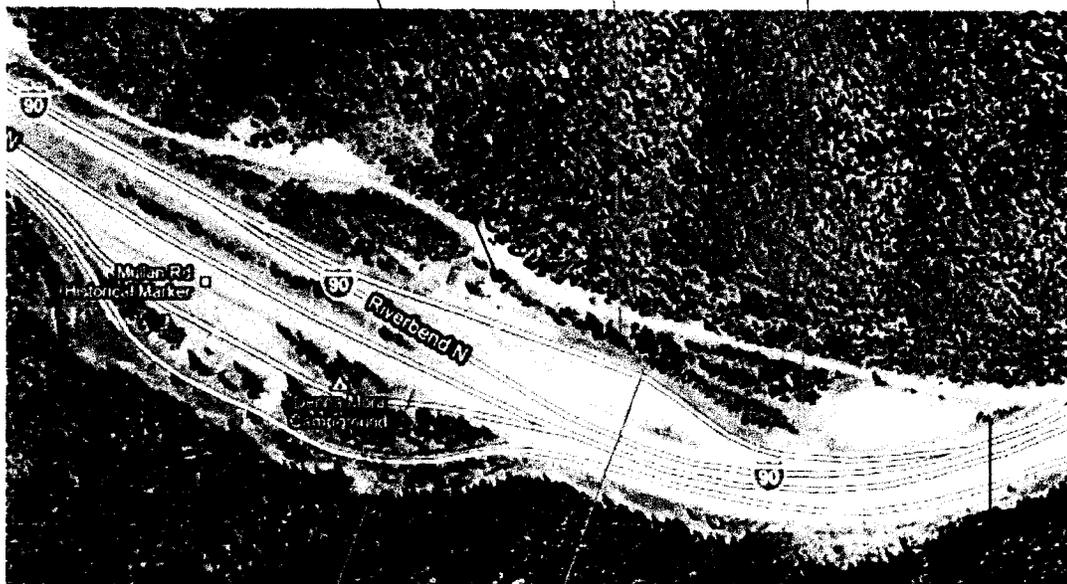
The project site map is attached.

# Dena Mora Rest Area – On-site PFR/Scoping Meeting

Combined effluent is treated in the current septic tank and drainfield. Modify as above.

Correct surface water inflow and source water UV system.

Correct distribution valve, drainfield, clean-outs.



EB Rest Area waste is pumped to the WB side for treatment.

Add Eliminite advanced w-w treatment system with dosing tank modifications to limit flow to <5,000 gpd.

Correct surface water problems at the toe of current sand mound.