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State Rep. Joe Sanfelippo's Testimony on Road to Sustainability Package

Chair Kulp and committee members, thank you for holding a hearing today on Assembly Bills 273, 275, 277, 283, 284, and 285 regarding transportation reforms here in Wisconsin. As legislators, we have heard loud and clear from our constituents that this state's transportation infrastructure needs our attention, and I am grateful for your willingness to move forward on finding solutions to address this ongoing problem. The bills before you today are part of a broader set of legislation known as the Road to Sustainability Package (RSP), which lays out a roadmap for making meaningful long-term changes to how we fund and deliver horizontal infrastructure here in Wisconsin.

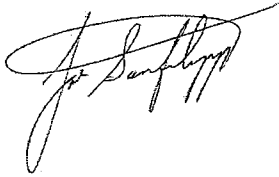
The issue plaguing our roads here in Wisconsin isn't simply a lack of resources, although the additional funds recently allocated to transportation by the Joint Finance Committee in the upcoming budget will no doubt be helpful. A broader problem is making sure that the finite funds we do have are allocated wisely and spent efficiently. To that end, we must look to how the Wisconsin Department of Transportation administers infrastructure projects in our state. The Legislative Audit Bureau recently completed a comprehensive audit and review of WisDOT and identified numerous opportunities for improvement, making several recommendations that would help the Department operate more efficiently. The RSP seeks to implement many of those recommendations to help ensure that WisDOT is the best possible steward of taxpayer money. For instance, if WisDOT receives only a single bid for a project, and that bid exceeds the Department's estimate by more than 10%, Assembly Bill 285 requires the Department reject the bid and re-advertise the contract in a manner likely to generate more bids. This encourages WisDOT to perform better diligence on contract estimates and stimulate competitive bidding. Similarly, Assembly Bill 284 incentivizes WisDOT employees to look for ways to deliver projects at lower costs by creating a discretionary merit award for WisDOT employees who identify cost savings, efficiencies, and innovations within the Department. By providing a financial incentive to employees who best know the inner workings of the agency, we will encourage Department staff to ask questions and challenge existing processes when more efficient strategies are possible. Re-aligning agency employee incentives towards efficiency will allow the Department to course correct on its own — without the Legislature imposing mandates on the agency.

Part and parcel of spending our infrastructure funds more wisely is finding ways to leverage opportunities to save money when they become available. Material costs represent a large portion of road construction project spending. Assembly Bills 273 and 277 offer ways to source materials at lower cost. Creating a Subgrade Efficiency Program will allow contractors to review WisDOT's list of approved, structurally-equivalent alternatives for subgrade construction and propose whichever construction approach is lowest cost for that contractor to bid and construct. Allowing contractors to figure out which equivalent materials to use in order to deliver the project for the lowest cost is a sensible way to make our tax dollars

go further. Similarly, by streamlining regulations for aggregate and concrete production sites to match existing rules for other, similar sites on construction projects, we will help reduce the costs and procurement challenges for road materials.

Design-build is an alternative delivery method for how construction projects are shepherded through the bidding process, offering significant cost savings and quicker turnarounds for projects where this method is used. The RSP included legislation overhauling the design-build process, and that language was added to the current budget. Assembly Bill 275 is an important supplement to that provision by requiring WisDOT to increase the number of design-build projects that it has in its pipeline in order to ensure that it has projects ready to go at every stage when resources become available for use. This will help reduce potential delays and allow the Department to seize opportunities that present themselves. Finally, Assembly Bill 283 requires any new wheel taxes proposed by municipalities be put up for a referendum before enactment, ensuring that taxpayers are satisfied with the accountability and spending priorities of their local governments.

The bills before you this morning represent a clear path forward towards improving Wisconsin's transportation infrastructure and putting it on a sustainable path for the future. By making the process more efficient and eliminating unnecessary obstacles, we can help ensure that projects are completed quicker and for less money, allowing us to stretch our transportation funding as far as possible. We need fresh ideas to address Wisconsin's transportation infrastructure needs, and these bills will help encourage better processes. I encourage you to pass Assembly Bills 273, 275, 277, 283, 284, and 285. Thank you for your attention to this important matter.

A handwritten signature in black ink, appearing to read "Joe Sanfilippo". The signature is fluid and cursive, with a large initial "J" and "S".

Wisconsin Assembly Committee on Transportation

Hearing on Assembly Bills 273, 275, 283, 284, 277

Testimony by Glen R. Schwalbach, P.E.

June 11, 2019

My name is Glen Schwalbach. I reside at 1090 Moonriver Drive, De Pere, WI. I am a Registered Professional Engineer, a P.E. in Wisconsin.

Following is a summary of my comments on each bill.

AB 273: It's not clear why this bill is needed; it would be confusing to implement. Sub-base requirements are decided by engineers or designers and depend upon the existing soil types. The DOT Facilities Development Manual shows ten sub-base equivalents but, in some cases, only a couple may be appropriate. In many cases, no sub-base is required. The bill could say "when sub-base is required, the department should designate as many equivalent options as appropriate for each project".

AB 275: This bill includes a definition of a design-build project which includes reference to "by low bid or by best value". Design-build projects include professional services such as architectural, surveying and engineering. Such services should be procured with a qualifications-based selection (QBS) process. For Federal projects, the Brooks Act requires QBS. Using QBS results in projects being the best quality at the least life-cycle costs. By the way, without using QBS, a design-build project will require more DOT monitoring, inspection, etc. Note that many states require warranties and maintenance agreements when using design-build.

AB 283: Referendums are just the fairest way to implement new taxes. Whether a wheel tax or a county sales tax, the taxpayers should decide. It is up to the government officials to provide the compelling arguments if they think the tax is needed. In my county, there is a lawsuit opposing a new county sales tax. If that tax had been voted for by referendum, there would be no lawsuit.

AB 284: Discretionary merit awards are a bad idea. Good managers don't use them. They cause many unintended consequences. They put the focus on just cost instead on safety, less congestion, long-life, etc. They may optimize a sub-process at the expense of sub-optimizing the whole system. They require a lot of administrative costs. They will be unfair. They don't encourage teamwork and create hard feelings among employees. My former employer, Wisconsin Public Service Corp. had such a program. We dropped it in the 1980's when we got smarter -- thanks to Dr. Deming, the guru of process improvement and business management. The process analysis techniques, implemented by former Secretary Gottlieb in 2011, are the proper methods for improving process efficiencies and reducing costs through teamwork. Those teams documented over \$1.5 billion in savings from 2011 through 2016.

AB 277: This bill just adds two more types of facilities to current law for exemptions to local ordinances. But, in all cases, the law should be clear that consideration should be given to local governments to minimize the impact on their residents and on their local roads.

10.11.2 Items Requiring Project Specific Customization

Designers need to consult the Regional Soils Engineer or Bureau of Technical Services Geotechnical Engineering Unit for assistance with the design of type MS, SR, and ES geotextiles; and for type MR and SSR geogrids. Modify the standard bid items for individual projects; do not develop SPV bid items.

Geotextile types MS, SR, and ES require a project specific special provision modifying the standard spec bid items to specify required material properties. In addition, other materials and construction provisions may be required to fit the individual project requirements.

Geogrid types MR and SSR require an STSP modifying the standard spec bid items to specify both materials and construction requirements. These STSPs contain the framework for additional contract requirements, but the designer must come up with the actual requirements.

- For Geogrid Type MR use STSP 645-024 "Geogrid Type MR"
- For Geogrid Type SSR use STSP 645-026 "Geogrid Type SSR"

LIST OF ATTACHMENTS

<u>Attachment 10.1</u>	Earthwork Calculation Examples
<u>Attachment 10.2</u>	Compaction of Soils
<u>Attachment 10.3</u>	Bridge Approach Construction Techniques

FDM 11-5-15 Select Materials in Subgrades

December 5, 2017

The following policy will be in effect for rural state trunk highway projects and urban freeway projects constructed after 2006. In the interim, designers are encouraged to use this policy on a selective basis on applicable projects. However, funding for such applications of select materials must come from established project allocations or from other region program allocations. This policy will not affect the common practice of ordering the use of select materials during construction to correct site-specific problems.

15.1 Policy

WisDOT policy will require using select materials in the upper portions of subgrades developed from soils that are difficult for subgrade construction. These include:

- All silty soils,
- Most silty clay soils,
- Soft clay soils,
- Mineral soils with a high organic content, and
- Any other soil with a history of problems relating to subgrade construction.

The shaded portion of Attachment 15.1 is designated the Standard Inclusion Area. It shows those areas in the state where these soils predominate.

Select materials will be used in subgrades for projects located in the Standard Inclusion Area shown in Attachment 15.1 unless the project soils report recommends against such application and provides suitable justification for this recommendation.

The non-shaded portion of Attachment 15.1 is the Standard Non-Inclusion Area. Here better soils predominate and select materials are normally not needed for subgrade construction. Select materials may, however, be used on specific projects in the Non-Inclusion Areas if the soils report identifies significant areas of difficult soils and recommends such treatment.

15.2 Application

This requirement will apply to all projects with significant earthwork volumes. Select materials may be used in subgrades on safety improvement projects or other projects with minor volumes of earthwork if such use is warranted by project requirements, time constraints, or other considerations. The soils report should provide a recommendation for use on projects of this type. **The requirement for select materials will not apply to resurfacing projects, pavement replacement projects, or projects with incidental amounts of earthwork.**

Select materials may be applied to discreet segments of a project based on changes in soil conditions. Such selective use must be based on recommendations for specific areas contained in the soils report.

Select materials will be required in both cuts and fills unless otherwise recommended in the soils report. Cut areas may be excluded if the material at and below subgrade elevation is identified as stable material such as

rock, gravel, sand, or dense till. Fill areas in which the top four feet of the subgrade is constructed from rock excavation may also be considered for exclusion.

15.3 Design

Attachment 15.2 shows specific materials and depths for ten different systems of select materials. These ten systems are considered to have equivalent performance and shall be used to provide the select materials for subgrades. The soils report should recommend which system or systems may be suitable for the specific project. This recommendation should be based on the materials available in the project area, the estimated cost of those materials, and past experience or performance. The designer shall review these recommendations and select the system best suited to the project.

For preliminary planning purposes, Table 15.1 provides estimated costs per mile for each of the ten select materials systems. The final cost to any project will depend on many factors that could result in significant variation from these estimated cost figures. These factors include local material costs and availability, transportation costs, earthwork adjustments, project staging, and project quantities.

Table 15.1 Estimated Cost of Select Material Systems

Select Material System	Estimated Cost per Mile
No. 1 – Breaker Run Stone	\$125,000
No. 2 – Breaker Run Stone with Geogrid	\$130,000
No. 3 – Grade 1 Granular Backfill	\$105,000
No. 4 – Grade 2 Granular Backfill or Select Borrow	\$100,000
No. 5 – Pit Run Sand and Gravel	\$100,000
No. 6 – Pit Run Sand and Gravel with Geogrid	\$115,000
No. 7 – Flyash, Lime, Cement Stabilization	\$ 95,000
No. 8 – Salvaged Materials or Industrial By-Products	*
No. 9 – Select Crushed Material	\$140,000
No. 10 – Select Crushed Material with Geogrid	\$140,000
* = Highly variable depending on material and location.	

When included in project plans, show the chosen select materials system on the appropriate typical section(s). Determine quantities of each of the required materials and include them as separate contract bid items. Adjust other earthwork quantities as necessary to compensate for the inclusion of a select materials system.

When select materials are used as stated in this procedure, they will be considered as part of the subgrade and will be included in the contract for subgrade construction. Soil parameters for pavement design will continue to be those of the project soils as determined in the soils report.

To preserve the integrity of the select materials systems and to facilitate movement of local traffic, it is strongly recommended that the Base Aggregate Dense should be included as part of the same contract.

Breaker Run is quarried rock or concrete material processed through a primary crusher, is not further screened or crushed, and will meet the gradation requirements shown in Table 15.2.

Table 15.2 Recommended Breaker Run Gradation

Sieve	Percent Passing
6-inch **	100
** In at least one dimension.	

Select Crushed material is crushed and screened aggregate with particles predominately larger than 1 1/2 inches, free of unconsolidated overburden materials, topsoil, organic materials, steel, and other deleterious materials, and will meet the gradation requirements shown in Table 15.3.

Table 15.3 Recommended Select Crushed Material Gradation

Sieve	Percent Passing
5-inch	90 - 100
1 1/2-inch	20 - 50
No. 10	0 - 10

Pit Run is an unprocessed aggregate material obtained from a gravel pit and will meet the gradation requirements shown in Table 15.4.

Table 15.4 Recommended Pit Run Gradation

Sieve	Percent Passing
1 1/2 inch	0 - 50

Attachment 15.3 through Attachment 15.7 are schematic drawings showing how the select material is to be placed in various situations. The select materials form the uppermost portion of the subgrade. Drainage of the select material is accomplished with relief trenches at all sag points and at 250 ft intervals between sag points. The flow lines of ditches should be at or below the bottom of the select materials. This may require a special ditch. If this is not possible then Attachment 15.6 shows how a special trench and pipe underdrain system can be built to help drain the select material.

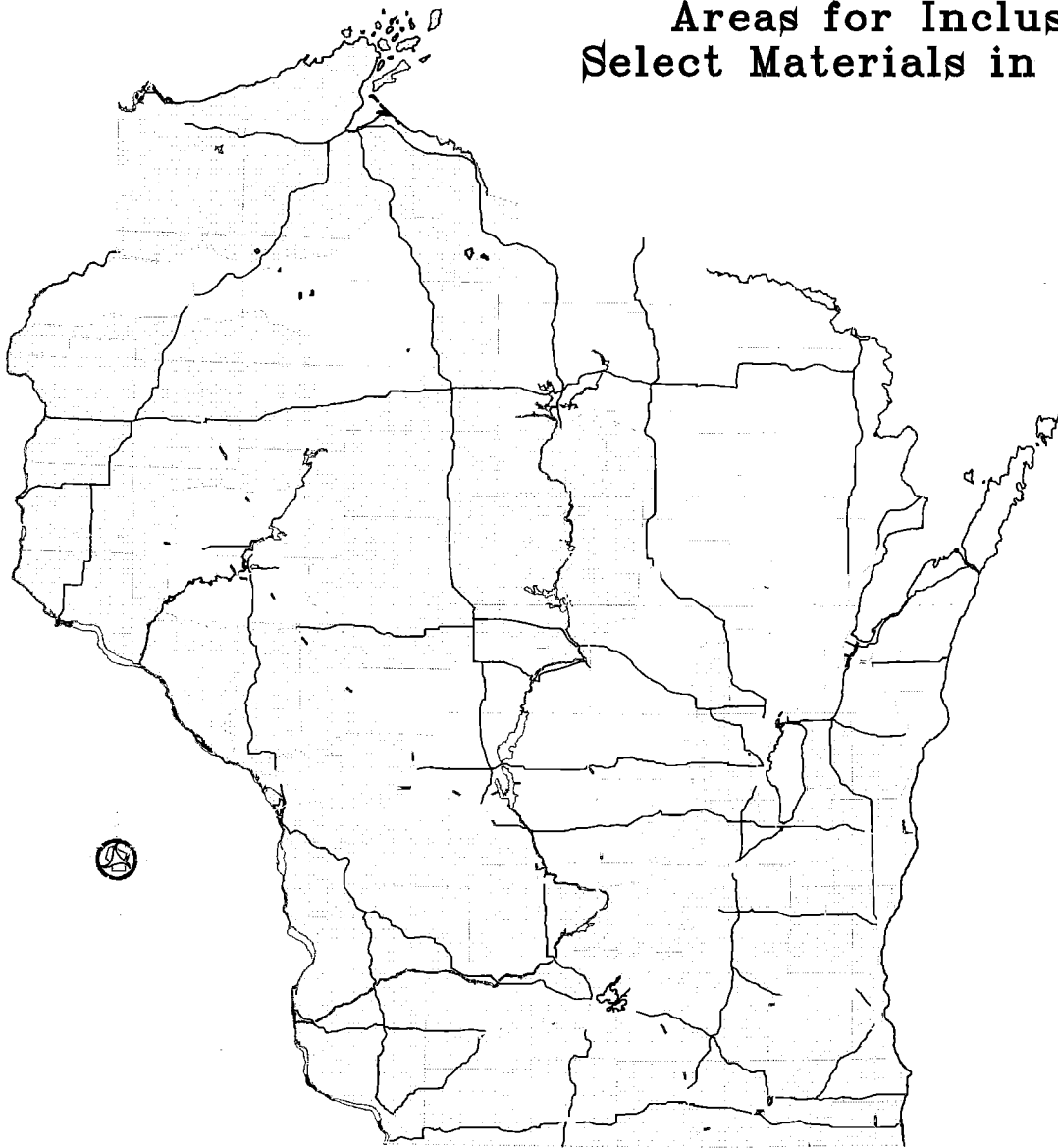
15.4 Other Design Considerations

The use of select materials could have a significant impact on excavation, waste, or borrow quantities. Consider carefully the distribution of any excess material and the impacts to the mass diagram resulting from the use of select materials.

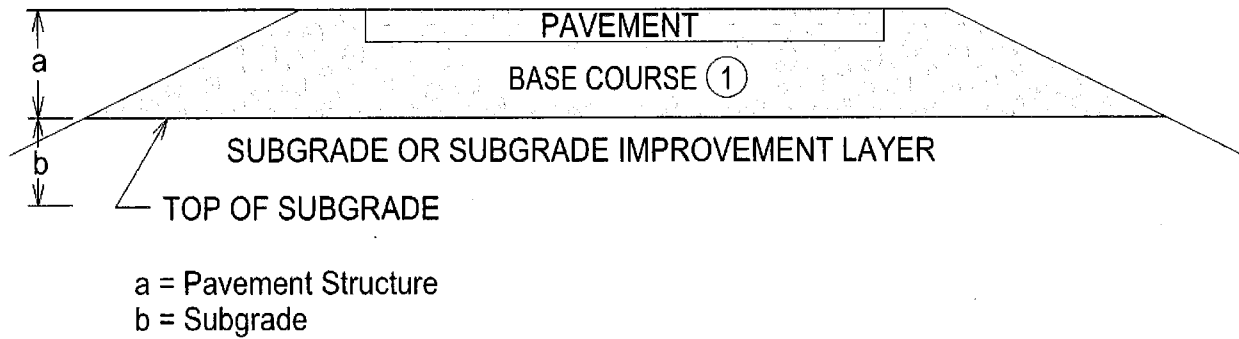
LIST OF ATTACHMENTS

- Attachment 15.1 Areas for Inclusion of Select Materials
- Attachment 15.2 Standard Select Materials Systems
- Attachment 15.3 Typical Half Section with Select Materials
- Attachment 15.4 Typical Half Section with Select Materials, 4-Lane Divided Highway, 50 ft Median
- Attachment 15.5 Typical Half Section with Select Materials, 4-Lane Divided Highway, 60 ft Median
- Attachment 15.6 Median Drain Detail for Select Materials Layer Greater Than cmax
- Attachment 15.7 Typical Section for 1-Lane Ramp with Select Materials

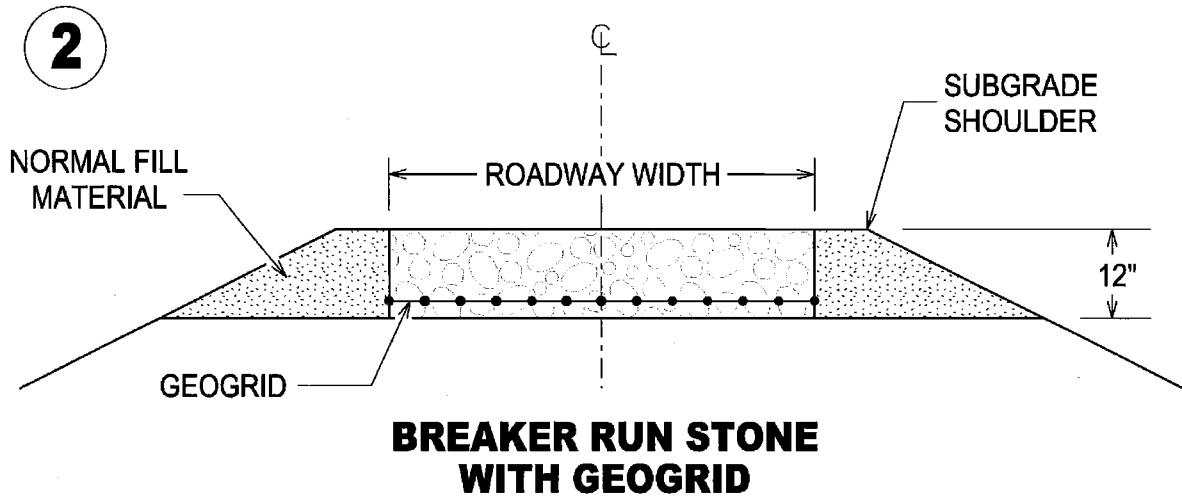
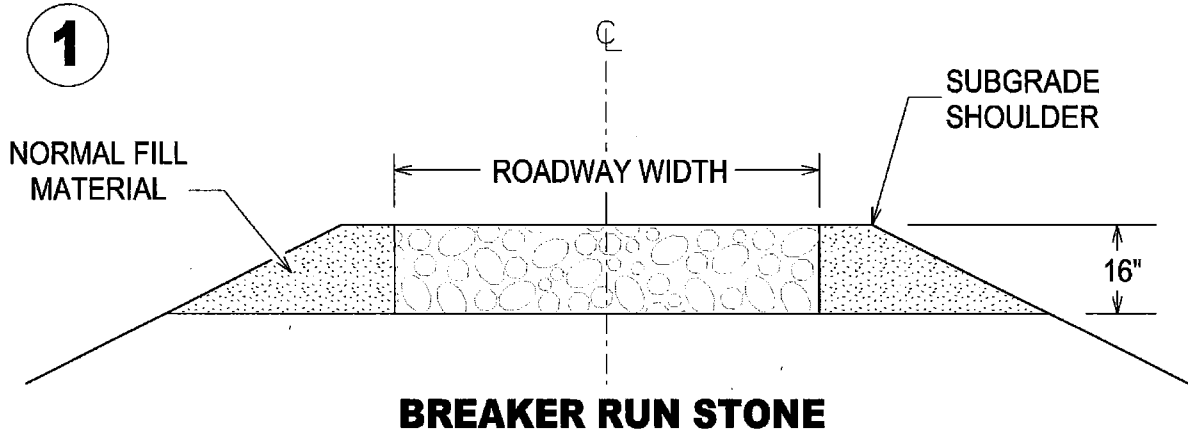
Areas for Inclusion of Select Materials in Subgrades

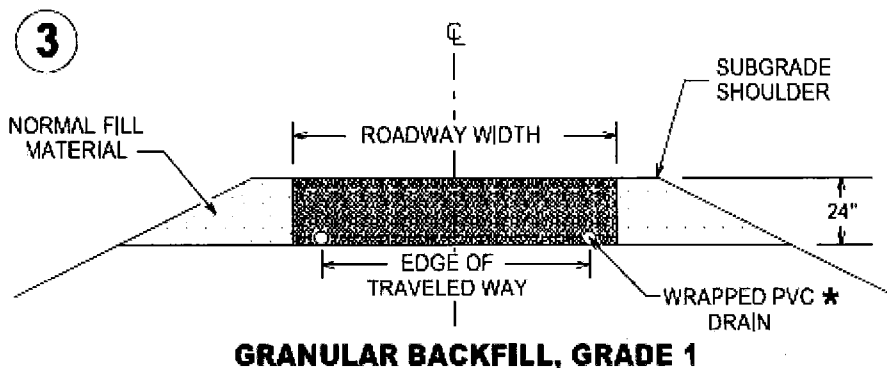


- Standard Non-inclusion Areas
- Standard Inclusion Areas

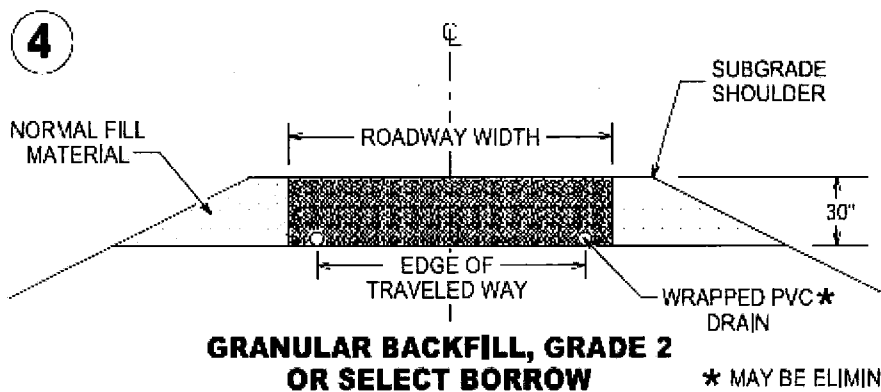


- ① BASE COURSE MATERIALS INCLUDE $\frac{3}{4}$ INCH / $1\frac{1}{4}$ INCH / 3 INCH DENSE GRADED BASE AS DEFINED IN WI STANDARD SPEC SECTION 301 AND 305

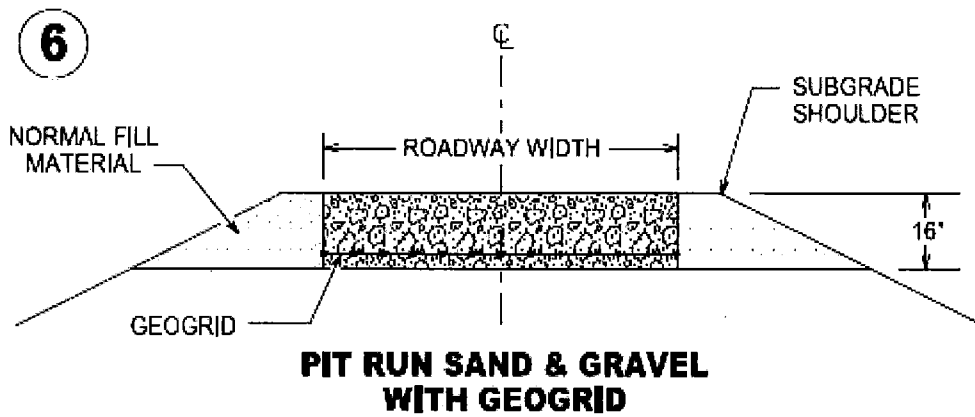
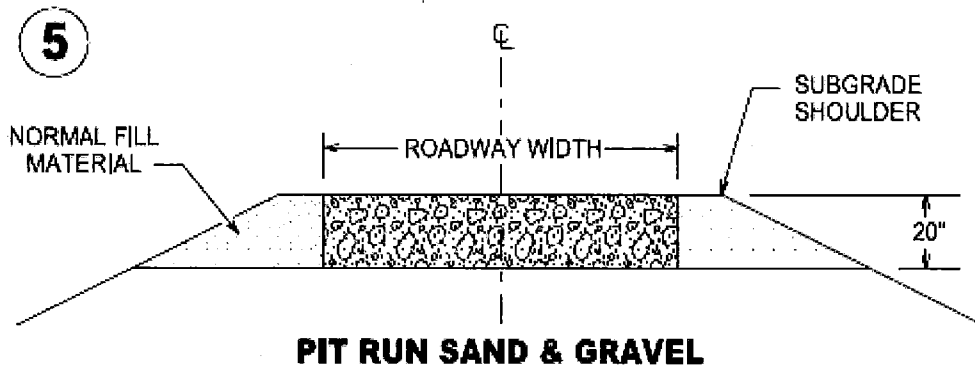




* MAY BE ELIMINATED IF GRANULAR BACKFILL SLOPES ARE COVERED WITH 3"- 4" OF BASE AGGREGATE DENSE



* MAY BE ELIMINATED IF GRANULAR BACKFILL SLOPES ARE COVERED WITH 3"- 4" OF BASE AGGREGATE DENSE



104 Scope of Work

104.8 Rights in the Use of Materials Found on the Project

- (1) The contractor may use on the project stone, gravel, sand, or other material found within the vertical and horizontal excavation limits the plans show. Ensure that the engineer determines the material's suitability before using it. The department will pay for both the excavation of these materials at the corresponding contract bid price and the bid item for which the excavated material is used. The department will not charge the contractor for the materials found within the above described excavation limits and so used. Replace, at no expense to the department, with other acceptable material all of the excavation material so removed and used for embankments, backfills, approaches, or otherwise.
- (2) Do not excavate or remove material from within the right-of-way that is not within the vertical and horizontal excavation limits the plans show without the engineer's written authorization. The contractor is encouraged to source material or plant locations within the project right-of-way that is not within the vertical and horizontal limits of the plan at no additional cost to the contractor; however, the contractor bears the risk of ~~Do not base bids on the anticipated approval of a request to excavate or remove material that is not within the above described excavation limits.~~
- (3) Take ownership of all materials required to be removed and not necessary for the work.



2-31.1 General

Standard spec 104.8 permits the contractor, to use suitable materials encountered in excavation of the roadway in lieu of materials normally furnished by the contractor, from outside sources. These materials are to be taken from inside the vertical and horizontal limits of excavation.

When there are circumstances that benefit cost and schedule, use of aggregates and other granular materials beyond the roadway excavation limits can be considered. This use will require special evaluation and a contract modification. See CMM 2-31.3 below.

Sale of materials for use on other contracts or for purposes other than those required under the contract are not allowed.

2-31.2 Material Found within Excavation Limits

The contractor is allowed to use stone, gravel, sand, or other material that meets the specification requirements and is found within the vertical and horizontal excavation limits shown on the plans. A contract modification is not required.

2-31.3 Material Found Outside Excavation Limits

The contractor is to base bids on materials shown in the earthwork summary showing areas intended for borrow during construction. Bids should not be based on the anticipated approval to excavate or remove material that is not within the excavation limits shown in the plans.

If the contractor believes there may be suitable materials within the right-of-way but outside the excavation limits, the contractor may request that the engineer allow them to test that material. The engineer needs to consider the environmental, access, and other aspects before allowing the contractor to access the right-of-way to test for potential use of materials.

The contractor may submit a proposal to use materials from outside the excavation limits. The project engineer with the help of region and central office staff will ensure that there are no concerns with using material from this area. Such items to consider are:

- What are the proposed boundaries for mining additional materials?
- How will the property be restored or protected after materials are removed?
- Were federal funds used to purchase the right of way?
- Does using these materials provide a cost savings to the Department?
- Is there adequate and safe access?
- Is Interstate access approval required?
- How will future maintenance of the site be affected?
- Did the project's environmental process and documentation include the affected area? Are there any environmental concerns?^[1] Additional environmental review and documentation may be required.
- What is the devaluation of the land upon its use as a borrow pit or waste area? Will its use as a borrow pit or waste area affect the current or future use of the land?^[1]

^[1] The region's Technical Services Section should assist with the environmental and real estate analysis. Bureau of Technical Services Environmental Section and Property Management Section should be consulted for the proposed change as well.

The Bureau of Project Development, Proposal Management Section and Construction Oversight Section can assist with cost-related issues.

Once those concerns are addressed, the project engineer will document a Contract Modification Justification (CMJ) and contract modification.

At a minimum, the contract modification should include:

- Adjustment in the unit price of the item of work, which typically includes:
 - Credit for the material itself
 - Savings due to a shorter haul distance
 - Additional administrative costs to the Department
 - Devaluation of the property due to mining activities
- Measurement of the material
- Restoration of the area
- Materials required for restoration of the excavation area must be furnished by the contractor at the contractor's expense